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CONTENTS AND SUBJECT INDEX

American Pediatrics. L. Emmett Holt, M.D., New York.....1157

Infections of Upper Respiratory Tract. H. F. Helmholz, M.D., and Frances Millikin, B.A., Rochester, Minn...1160
Discussed by Drs. Porter and Helmholz.

Typhus in Southern California. L. M. Powers, M.D., Los Angeles.....1164
Discussed by Drs. Dickie, Stone, Kerr, Welch and Powers.

Experimental Scarlet Fever. George F. Dick, M.D., and Gladys Henry Dick, M.D., Chicago 1166

Aneurysms. Baldwin Lucke, M.D., and M. H. Rea, M.D., Philadelphia...1167
Discussed by Dr. Weidman.

Estimation of Sugar in Blood. Benjamin Kramer, M.D., and I. F. Gittleman, Baltimore.....1171

Crypt Content of Tonsils. D. J. Davis, M.D., Chicago.....1172
Discussed by Drs. Albert, Terry and Davis.

Mental Retardation and Ductless Gland Disease. Hans Lisser, M.D., and C. E. Nixon, M.D., San Francisco.....1174
Discussed by Drs. Reynolds, Timme, Wright and Nixon.

Giant-Cell Tumor. Ferdinand P. Herff, M.D., San Antonio, Texas.....1179

Chronic Actinic Cheilitis. Samuel Ayres, Jr., M.D., Los Angeles.....1183
Discussed by Drs. Frost, Green, Lain, Wise, Mitchell, Weidman, Alderson, Ettleson, Scholtz, Taber and Ayres.

Match and Match-Box Dermatitis. O. H. Foerster, M.D., Milwaukee....1186
Discussed by Drs. Irvine, Fox, Mitchell, Guy, Wise, Weidman and Foerster.

Hilum Gland Enlargement in Tuberculous Children. Edward Dyer Anderson, M.D., Minneapolis.....1191
Discussed by Drs. Helmholz, Gengenbach and Anderson.

Labyrinthine Tests in Cerebellar Diagnosis. Laurence Selling, M.D., and Frank B. Kistner, M.D., Portland, Ore. 1194
Discussed by Dr. Meyers.

Pathologically Flexed Knee. Charles A. Parker, M.D., Chicago.....1198
Discussed by Drs. Orr, Henderson, Lord and Parker.

Blue Sky Health Propaganda. Frederick D. Stricker, M.D., Portland, Ore..1200
Discussed by Drs. McCormack and Stricker.

Foreign Bodies in the Bronchi. Henry Dietrich, M.D., and Hugh K. Berkley, M.D., Los Angeles.....1202
Discussed by Drs. Abt and Dietrich.

Pancreatic Insufficiency Resulting from Large Meat Protein Intake. G. M. Parkhurst, M.D., Bath, N. Y.....1204

CLINICAL NOTES, SUGGESTIONS AND NEW INSTRUMENTS

Fracture of Patella. Samuel Kleinberg, M.D., New York.....1205

Dark Field Examination of Tubercle Bacilli. Edward W. Schoenheit, M.D., Asheville, N. C.....1206

An Unusual Twin Birth. A. W. Petit, M.D., Nashua, N. H.....1206

Thyroid Muscle Clamp. B. I. Harrison, M.D., Knoxville, Tenn.....1207

Simple Vacuum Apparatus for Suppurating Ears. E. W. Carpenter, M.D., Greenville, S. C.....1207

(Continued on next page)

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See Page 3

EDITORIALS

The Deetherization of Patients.....1208
Diets and Fasting in Epilepsy.....1208
Indigent Migratory Consumptive...1209
The Dreyer Vaccine.....1210

CURRENT COMMENT

The Supply of Physicians in Great Britain.....1210
The Etiology of Chorea.....1210
The Effect of Industrial Waste on Water Supply.....1211
Ship-Borne Plague in 1922.....1211
Bacterial Synthesis of Amino-Acids.1211

SUBJECT INDEX TO THIS ISSUE

The letters used to explain in which department the matter indexed appears are as follows: The Star (*) indicates an Original Article; "ab," abstract; "E," Editorial; "C," Correspondence; "T," Therapeutics; "Ml," Medicolegal; "P," Propaganda for Reform; "ME," Medical Economics.

Abortion from arsphenamin treatment..ab-1240
Acidosis in children.....ab-1238
Actinic rays, chronic cheilitis from.....*1183
Adenoma sebaceum ab-1244
Adiposis dolorosa ab-1245
Alkalosis in children.....ab-1238
Amino-acids, bacterial synthesis of.....E-1211
Anaphylaxis and antianaphylaxis.....ab-1244
Anemia, pernicious ab-1245
sickle cell ab-1231
Anesthesia, deetherization of patients..E-1208
Aneurysms, studies on.....*1167
Aorta, aneurysm of.....*1167
Appendectomy, cutting ileocecal fold in..ab-1230
Arsphenamin, hemorrhagic reaction to..ab-1242
treatment, abortion from ab-1240
Arthritis, gouty ab-1241
Asthma, psychotherapy in.....ab-1245
Bacteria, synthesis of amino-acids by...E-1211
Benzyl mandelate, pharmacology of.....ab-1235
Bile ducts, obstruction of.....ab-1246
retention and diagnosis of jaundice..ab-1241
Bladder malignancy, treatment of.....ab-1235
sarcoma of ab-1234
ulcers, fulguration of.....ab-1229
Blood albumin in cancer.....ab-1244
coagulation, new test of.....ab-1233
culture in Malta fever.....ab-1238
dried, stain for.....ab-1239
hyperglycemia test in diabetes.....ab-1240
pathology of hypertension.....ab-1246
pressure, high, low salt diet in.....ab-1234
pressure, high, sodium iodid in.....1225
pressure in peptone shock.....ab-1232
pressure in urinary obstruction.....ab-1235
pressure measurements ab-1243
sugar estimation *1171
sugar, modifying amount of.....ab-1239
uric acid in eczema.....ab-1233
Book Notices.....1227
Books Received.....Adv. page 28
Brain injuries show cortical function...ab-1237
effects of drugs on temperature of...ab-1235
Bronchi, foreign bodies in.....*1202
Bronchoscopy in children.....*1202
Calcium, metabolism and cod liver oil..ab-1231
Cancer, blood albumin in.....ab-1244
Canities and familial diabetes.....ab-1236
Canning, effect of, on vitamins.....ab-1232
Cataract operation, historical illustration of ab-1246
Cerebellum, labyrinthine tests of.....*1194
Cerebrospinal fluid, reactions in.....ab-1244
Cesarean section, extraperitoneal.....ab-1229
in ablatio placentae?.....ab-1229
Cheilitis, chronic actinic.....*1183
Chenopodium, oil of, potency of.....ab-1235
Children, substandard ab-1246
Cholecystectomy and peritonitis.....ab-1234
Cholesterol, test for.....ab-1232
Chorea, magnesium sulphate in.....ab-1243
etiology of E-1210
stasis hyperemia in.....ab-1245
Cod liver oil, and metabolism.....ab-1231
Conjunctiva, tuberculosis of.....ab-1246
Convergence spasm with pineal tumor..ab-1237
Cornea, Elliot's operation on.....ab-1246
Correspondence 1225
Cough, double sound.....ab-1241
Death, sudden, from fibrillation.....ab-1238
Deaths 1223
Dehydration, effect of, on vitamins....ab-1232
Dementia praecox and puberty.....ab-1233
Dermatitis, match and match-box.....*1186
Diabetes, circulatory derangement in..ab-1241
dietetic treatment ab-1233
familial, with canities.....ab-1236
hyperglycemia test in.....ab-1240
insulin and pancreatin in.....1225
Dimol P-1224
Diphtheria antitoxin by digestive tract.ab-1240
Diseases, interaction of.....ab-1245
Dreyer vaccine E-1210
Drugs, effects of, on temperature of brain and liver ab-1235
Ductless glands and mental retardation.*1174
and skin anomalies.....ab-1242
Duodenal tube, feeding through.....ab-1241
Duodenum, ulcer, adhesions from.....ab-1245
diverticula ab-1205
ulcer, indications for operation in....ab-1239
Dyspepsia, recent literature on.....ab-1240
Echinococcosis in lung.....ab-1243
Eclampsia as a biologic necessity.....ab-1230
Eczema, blood uric acid in.....ab-1233
Encephalitis, epidemic ab-1245
eye symptoms in ab-1234
neuralgia in ab-1240
progressive obesity after.....ab-1243
Epilepsy, diets and fasting in.....E-1208
Epinephrin, synthetic ab-1244
secretion and temperature.....ab-1232
from suprarenal cortex.....ab-1232
Epinephrinemia ab-1242
Eunuchodism with partial giant growth..ab-1239
Fistulas, salivary, treatment of.....ab-1245
Foreign Letters.....1218
Fulguration of bladder ulcers.....ab-1229
Furuncles and pulmonary tuberculosis..ab-1244
Gallstones, roentgenography of.....ab-1242
Giant growth ab-1239
Glasses and false movements.....ab-1246
Glycolysis and insulin ab-1232
Goiter, iodin for older girls.....ab-1243
Gouty arthritis ab-1241
Government Services 1218
Health, blue sky propaganda.....*1200
Heart, recording sounds.....ab-1239
sounds with partial branch block....ab-1239
Heatstroke in infants.....ab-1241
Hemophilia in breast-fed infant.....ab-1243
Hemorrhoids, perivenous injections in..ab-1240
Hepatitis and abdominal disease.....ab-1230
Hepatolenticular degeneration ab-1237
Hilum glands in tuberculous children...*1191
Hoarseness, cause of.....ab-1237
Hyperthyroidism soon after puberty....ab-1241
Hypnosis, medicolegal significance of...ab-1245
Industrial waste and water supply.....E-1211
Infant feeding, milk powder in.....ab-1238
Infantilism, enuchoid ab-1239
Insulin and glycolysis.....ab-1232
status of.....1225
Intellect and muscular force.....ab-1246
Intestinal disease and urinary apparatus..ab-1241
intestinal peristalsis ab-1234
Jaundice, diagnosis of.....ab-1241
dissociated jaundice ab-1239
Kidney, diagnosis of malignancy of.....ab-1235
function, benzoate test for.....ab-1233
tubule, function of.....ab-1232
water excretion by.....ab-1231
Knee, flexed, treatment of.....*1198
Kottmann reaction in children.....ab-1231
Labor, an unusual twin birth.....*1206
Labyrinthine tests in cerebellar diagnosis*1194
Lead poisoning, incipient.....ab-1242
Leukocyte count, variations in.....ab-1239
Liver, free sugar content of.....ab-1235
temperature, effects of drugs on....ab-1235
Lung, hydatid cyst in.....ab-1243
Macular degeneration, familial ab-1246
Malaria, experimental ab-1243
differential diagnosis of.....ab-1244
Malnutrition, thick cereal in.....ab-1234
Malta fever, blood culture in.....ab-1238
Marriages 1223
Match and match-box dermatitis.....*1186
Medical Department in World War.....C-1225
Medical Education, Registration.....1226
Medicolegal 1228
Meninges, tumors in.....ab-1244
Menstruation and Roentgen-ray.....ab-1229
Mental retardation and ductless glands..*1174
Milk powder in infant feeding.....ab-1238
Muscular forces and intellect.....ab-1246
Mushrooms, vitamins in.....ab-1243
Myelitis, serotherapy in.....ab-1239
Nerve, trigeminal and oculocardiac reflex ab-1239
Nervous system, vegetative ab-1242
sympathetic, and skin anomalies....ab-1242
Neuralgia in epidemic encephalitis.....ab-1240
Neuritis, auditory, from nicotin.....ab-1245
New and Nonofficial Remedies.....1207
News 1212
Nicotin, auditory neuritis from.....ab-1245
Nutritional disorders, literature on.....ab-1240
Nystagmus, caloric reaction for.....ab-1245
Obesity, progressive, after encephalitis..ab-1243
Obstetrics, post partum, study of.....ab-1230
Pancreatin, status of.....1225
Pancreatitis, chronic, obstructing bile ducts ab-1246
acute ab-1229
Paralysis, general, tuberculin in.....ab-1244
Parotid fistulas, treatment of.....ab-1245
Parotitis, oculocardiac reflex in.....ab-1240
Patella, vertical fracture of.....*1205
Pediatrics in America.....*1157
Peptone shock, blood pressure in.....ab-1232
Pericardium, tumors of.....ab-1244
Peritoneal fluid, biology of.....ab-1245
Peritonitis following cholecystectomy..ab-1234
Phosphorus metabolism and cod liver oil.. .....ab-1231
Physicians in British Medical Register...1226
supply of, in Great Britain.....E-1210
Pineal tumor and convergence spasm...ab-1237
Pinworms, extermination of.....1225
Placenta, premature detachment of....ab-1229
Plague, ship-borne, in 1922.....E-1211
Pleurisy, after-treatment of.....ab-1245
Pregnancy, extra uterine, time for operation in ab-1229
roentgen-ray in ab-1230
Propaganda for Reform.....1224
Pruritus ani, operation for.....ab-1244
Puberty and dementia praecox.....ab-1233
Pyelitis and respiratory infections *1160
Pyocyaneus infection in wounds.....ab-1244
Queries and Minor Notes.....1225
Rachitis in young infant.....ab-1231
Radius, giant-cell tumor of.....*1179
Raynaud's disease and syphilis.....ab-1234
Rectum and cancer ab-1244
Reflex, oculocardiac, in mumps.....ab-1240
oculocardiac, with trigeminal nerve disease ab-1239
Respiratory diseases, autogenous vaccines in ab-1240
respiratory infections and pyelitis.....*1160
Sarcoma, giant-cell tumor of radius.....*1179
of bladder ab-1234
Scarlet fever, experimental *1166
Semilunar cartilage, removal of.....ab-1238
Skin anomalies and endocrine and sympathetic systems ab-1242
sensory activities of.....ab-1237
Society Proceedings.....1229
Speech phenomena in diagnosis.....ab-1245
State Board Examinations.....1226
Stomach, intermittent claudication of...ab-1241
cancer, early diagnosis of.....ab-1237
syphilis of ab-1244
treatment of hemorrhage from.....ab-1239
ulcer, indications for operation in...ab-1239
ulcer, gastropylorectomy for.....ab-1239
Strabismus, effect of sutures on visual axis ab-1246
Styloid process causes sore throat.....ab-1238
Suprarenals, acute insufficiency of.....ab-1242
physiology of ab-1242
Syphilis, intestinal manifestations of...ab-1241
hereditary and Raynaud's disease..ab-1234
Tetany, pathogenesis of.....ab-1232
Thorax, pyramidal malformation of....ab-1246
ultraviolet ray in.....ab-1231
Throat, sore, from elongated styloid...ab-1238
Thyroid muscle clamp.....*1207
Tonics and Sedatives.....Adv. page 22
Tonsils, crypt content of.....*1172
Tuberculin and bismuth in general paralysis ab-1244
Tuberculosis and hilum gland enlargement *1191
adult, from childhood infection.....ab-1225
bacilli, dark field examination of.....*1206
Dreyer vaccine E-1210
indigent migratory consumptive.....E-1209
pulmonary, and furuncles ab-1244
Twin birth, unusual.....*1206
Typhus fever in California.....*1164
Ultraviolet ray in tetany.....ab-1231
Ureter, intravesical lesions of.....ab-1235
Uric acid in blood in eczema.....ab-1233
Urinary apparatus and intestinal disease..ab-1241
obstruction, blood pressure in.....ab-1235
Vaccine, autogenous, in acute respiratory diseases ab-1240
Vacuum apparatus for suppurating ears..*1207
Ventricular fibrillation and sudden death ab-1238
Vinatier Nursing Home.....ab-1241
Vitamins in mushrooms.....ab-1243
effect of canning and drying on....ab-1232
Water intoxication ab-1233
excretion of, by kidneys.....ab-1231
supply and industrial waste.....E-1211
Whooping cough and breast feeding....ab-1243

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AMERICAN PEDIATRICS

A RETROSPECT AND A FORECAST *

L. EMMETT HOLT, M.D., LL.D.
NEW YORK

Twenty-five years ago the American Pediatric Society first honored me with the presidency. The intervening years have seen some interesting and important changes in all departments of medicine, in none more than in pediatrics. The present occasion suggests some comparisons between pediatrics of a quarter century ago and pediatrics of today.

The program of the meeting of 1898 included twenty-one papers. Of this number only one—by Dr. R. G. Freeman, on the pasteurization of milk—represented a laboratory investigation. All the others were what we would term clinical papers. Thirteen of them were case reports and discussions, and the remainder were general papers on clinical subjects. Many of these represented interesting studies and valuable original observations, but it was essentially a clinical meeting. This is in striking contrast to our program for this meeting, which includes fourteen papers representing laboratory investigations.

The most notable paper on the program of 1898 was the report of the Committee on the Collective Investigation of Infantile Scurvy, a disease which was then only just beginning to be generally recognized. In the report, 379 cases were compiled and analyzed. Up to that time, it was the most important clinical study of the disease that had been made. In presenting the majority report, the chairman, Dr. Crozer Griffith, stated that the conclusion reached was that the disease was of dietetic origin, and that sterilized, pasteurized or condensed milk or proprietary infant foods were the forms of feeding which most frequently preceded its development. He said, "We do not say that diet is the cause, but that, from the report, diet seemed to be the cause." This conclusion, however, was dissented from by one member of the committee, who presented a minority report in which he expressed the opinion that "infantile scurvy was due to a chronic ptomain poisoning," and that food per se was not responsible for the condition. Much careful work and many discriminating observations will be found in papers of the society at that period of its history. Let us not despise the contributions of those days; they are well worth our study. If today we have a broader vision of our science than the men of twenty-five years ago, it is not because our sight is better but because we stand on their shoulders.

* Presidential address, read before the American Pediatric Society, French Lick, Ind., May 31, 1923.

ADVANCES IN TWENTY-FIVE YEARS

American pediatrics was then only on the threshold of its development. Not half a dozen men practiced pediatrics exclusively as a specialty. Not a medical school in the United States had a separate department of pediatrics. When any instruction was given in this branch, it was usually as an appendage to that in obstetrics or general medicine. Laboratories for clinical, pathologic or chemical investigation of pediatric problems did not exist, except such as were devoted to a study of diphtheria. Antitoxin having been brought out only three years before, it was not yet in general use and its value was regarded by many as a subject for discussion.

The milk station or infant consultation station for the observation and supervision of healthy babies had not been organized in this country. There were no public health nurses, and there was not in the United States a state or a municipality with a special department of child hygiene or child welfare. Agitation for better supervision of the production and distribution of milk had just begun, the commercial pasteurization of milk was hardly thought of, and the value of home pasteurization was being urged.

The roentgen ray had been discovered only three years before, its application to bone surgery had just begun, and its present use in medical diagnosis was not dreamed of. Such things as basal metabolism were little more than a name. Lumbar puncture as a means of diagnosis was just beginning to be employed.

It is to laboratory investigators that most of the advances in our science in the last quarter century are due. Consider what has been added to our knowledge of diphtheria, poliomyelitis, cerebrospinal meningitis, infantile syphilis, rickets, tetany, diabetes, scurvy and the other deficiency diseases. In this period the new sciences of immunology and serology have developed, and almost the whole of biologic chemistry as applied to medicine.

REDUCTION IN MORTALITY FIGURES

But great as these advances are, they are not the only, or perhaps the greatest, achievements in pediatrics to which we can point. The mortality figures for New York (Boroughs of Manhattan and Bronx) for two years, 1921 and 1922, suggest some interesting comparisons with those of twenty-five years before. While the estimated population under 5 years of age has increased from 225,000 to 297,000, the actual number of deaths under 5 has decreased from 32,202 to 28,519, and the death rate has fallen from 14 to 9.6 per cent.

In the accompanying table are given for each of these periods the ten most common causes of death under 5 years.

The most striking change is that actual deaths from diarrheal diseases in children under 5 years have dropped from 7,224 to 1,942. These diseases, which have occupied first place in mortality figures for this time of life as long as our records are available, have now fallen to third place.

At the head of the list now stands "malformations and diseases of early infancy," while pneumonia has risen to second place. Pneumonia, which has been thought to be on the increase, has risen from third to second place, yet, if we combine the figures for pneumonia and bronchitis, we note a reduction for acute respiratory diseases from 7,051 to 3,584, nearly 50 per cent., a most surprising showing.

What has interested me has been not only the change in the position of these different causes of death, but also the *actual reduction* which is shown in all of them. To what causes can we attribute such a fall in mortality figures? In diphtheria and croup, it is clearly the result of the use of antitoxin. Also, for the reduction in the deaths from diarrheal diseases, there is an adequate explanation in what we have learned and applied regarding the means of prevention, such as

Causes of Death Under Five Years

Years 1896-1897		Years 1921-1922	
Cause of Death	No. of Deaths	Cause of Death	No. of Deaths
1. Diarrheal diseases	7,224	Malformations and diseases of early infancy	4,972
2. Malformations and diseases of early infancy	5,841	Pneumonias	3,413
3. Pneumonias	5,169	Diarrheal diseases	1,942
4. Diphtheria and croup	2,703	Measles	694
5. Acute bronchitis	1,892	Diphtheria and Croup	677
6. Measles	1,042	Whooping cough	337
7. Convulsions	1,010	Tuberculous meningitis	294
8. Tuberculous meningitis	919	Scarlet fever	240
9. Whooping cough	719	Acute bronchitis	171
10. Scarlet fever	655	Convulsions	24
Total deaths, all causes, under 5 years	32,202		28,519
Estimated population, under 5 years	225,000		297,000
Death rate, under 5 years	14 per cent.		9.6 per cent.

more intelligent feeding, pasteurization of milk, and cleanliness of the milk supply. The reduction in deaths from tuberculous meningitis may possibly be more apparent than real, owing to better diagnosis since the general use of lumbar puncture. No doubt, twenty-five years ago many cases of acute meningitis, due to the streptococcus, pneumococcus and other organisms, were reported as tuberculous. But why deaths from measles should fall from 1,042 to 694, those from scarlet fever from 655 to 240, and those from whooping cough from 719 to 337 is not so clear. For none of these can it be said that the drop is due to more accurate diagnosis or to new or special treatment.

Several possibilities suggest themselves: First, and perhaps most important of all, owing to better feeding and better hygiene we have a more vigorous generation of children, in consequence of which they have greater resistance to these infections. Probably also better nursing and the omission of the indiscriminate use of drugs have had some influence. I cannot resist the impression that there has been also a considerable reduction in morbidity due to better general hygiene, to the enforcement of quarantine, and to education. But all of these conditions taken together do not satisfactorily explain the facts I have stated.

ARE DISEASE TYPES CHANGING?

One who saw children's diseases as they occurred twenty-five years ago and as they occur now cannot resist the conclusion that for some reason, which does not appear, there is now a great change in the virulence of the active viruses with which these different diseases are associated.

Theobald Smith tells us that epidemic diseases of animals sometimes prevail for years with great severity and high mortality, and then gradually occur with less frequency and with diminishing virulence until they entirely disappear. "They have their day and cease to be." But it sometimes happens that after a considerable time they reappear and spread again with alarming frequency and severity.

The mere fact that the mortality of a disease, when it is seen with the greatest virulence, is high, may lead to an interment of virulent bacteria with the bodies of their victims, while the disease continues to spread through the community by the less virulent strains. A gradual adaptation of the human body to different types of infection is another hypothesis that merits consideration.

However we may speculate as to the true explanation, the fact remains that we are witnessing a remarkable reduction in mortality in infancy and childhood. We should all like to consider this a result of the advances in preventive medicine and in hygiene, and undoubtedly much of it is due to these causes. But there remains a large factor for which as yet we cannot satisfactorily account. For this reason it is difficult to predict whether this decline will continue. With a more general application of preventive hygienic measures it probably will. The reduction has already gone farthest in those countries and communities in which preventive medicine has been most highly developed and is most widely practiced. The fall in diarrheal diseases, malformations and diseases of early infancy, and pneumonias has been gradual and fairly continuous during the twenty-five years. They cannot be compared with influenza, cerebrospinal meningitis and poliomyelitis, which occur in widespread epidemics at considerable intervals. But the experience in the army camps has shown that even measles may under favorable conditions develop a very high degree of virulence; and the report has just been issued indicating a great increase in the severity of smallpox recently, the case fatality in 276 cities of the United States and Canada in 1922 being five times that of 1921.

THE PEDIATRICIAN OF THE FUTURE

What of the future? What forecast may one venture to make for pediatrics in the next twenty-five years? In my view, three distinct types of pediatricians will be needed in the future: first, the research man, who is likely to be a full-time head of a department in a university medical school; second, the man who applies our best science in the treatment of sick children in the home and in the hospital and dispensary, and, third, the public health pediatrician, who will organize and direct this special department in a state or city or county health board. It will be the duty of the latter to bring before the lay public and the general medical profession the latest and the best that science has to offer. He must not only be an administrator but also an educator, for he must work with teachers and school authorities as well as with physicians.

It is impossible to say of any one of these that he is the most important, for all seem to me to be equally essential. Just now the public health pediatrician seems to be most in demand. But we need them all, and all should be represented in this society. Instruc-

tion given in our medical schools must be by all of these groups and must fit men to enter each of these fields.

One subject that is likely to have much greater importance in the pediatrics of the future is that of mental hygiene. At present the profession is occupied chiefly with the later results of faulty mental hygiene, as in various types of mental instability and disease, the foundations for which are often laid in childhood and are due to a maladjustment not understood and not corrected. Many of the habits, the fears, the tempers, the night terrors, and the whims of children have a significance that few of us appreciate. When these patients are brought to us and we discover that the symptoms have no basis in the physical condition of the children, we are apt to pass them over as not deserving serious consideration. Yet, when in adolescence the symptoms of dementia praecox or other mental disorders have developed, it is found that a large portion of these patients have shown very early in childhood some indications of mental instability. Had the early manifestations been understood and had the child been placed in an environment and given an education in which these things were properly recognized, the outcome might have been very different. It is only in the earliest stages of these disorders that treatment can have much effect, and it is the early symptoms that are brought to the notice of the pediatrician or the family physician, very seldom, at this age, to the specialist in mental hygiene. In the ever increasing complexities of our modern life, cases of this kind are becoming more and more frequent.

FUNDAMENTAL IMPORTANCE OF PREVENTIVE MEASURES

The pediatrics of the future, like the general medicine of the future, will differ very much from that of the past. The great problems seem to me to relate to the acute infections and those associated with nutrition. It seems likely that more will be accomplished with the acute infections by the development and application of measures of prevention than by the discovery of specific remedies for their cure. What has been done in the control of smallpox, malaria, typhoid and diphtheria may be extended to many other diseases. The newer knowledge regarding rickets also has brought with it possibilities for prevention, the results of which we cannot now foresee but which lead to the hope that this disease of modern life may be, if not stamped out, at least so reduced in frequency and severity as to be shorn of its dangers.

But this result will be reached only when our scientific knowledge is generally applied. We know how infantile scurvy can with absolute certainty be prevented; yet this disease, so far from being eliminated, does not appear—at least in New York—to have notably decreased. In the last twenty-five years, the number of cases treated by five-year periods in my hospital experience has been four, fifteen, nineteen, forty-five and fifty. This is another instance of how far general practice lags behind knowledge.

We are a long way yet from reaching the results that are possible even from applying existing knowledge of infant feeding and hygiene. In the past we have measured our success in solving the problem of nutrition in early life by the declining death rate. But this is not the only result. We are now seeing that the effects of good nutrition in infancy are evident also in a generation of older children with improved health and better physical development and, in consequence, with a greater resistance to disease all through the period of growth. It is hard to estimate to what degree the standard of health and physical development of men and women could be raised by proper supervision and direction during the entire period of growth. But the same sort of continuous systematic observation as that which we are now endeavoring to give to infants must be given to children of all ages if we would secure the best results.

One of the most important measures to be developed is systematic, periodic physical examinations. This is fast becoming one of the most significant departments of public health. It makes possible the early recognition and correction of physical defects, the supervision of diet and the inauguration of proper hygiene. To save waste is one of the aims in modern business administration. We as physicians, should approach our problems with something of the same idea and in the same spirit.

THE PEDIATRICIAN AS A HEALTH TEACHER

What a saving of health and suffering would be possible if the common rules of health were known and practiced! This must come largely through educational measures. This is a department of pediatrics to which most of us have given too little thought, for we have been too much engrossed with the diseases that have resulted from the violation of these rules. Nowhere in the whole realm of preventive medicine is there such a field for usefulness as that which is open to the pediatrician.

The duty of the pediatrician, then, is not only to advance knowledge in all subjects related to the growth and health of children, but also to see that such knowledge is applied; for of what value is our knowledge unless it is used? We must be the teachers and leaders of the public in all these matters. This field we have neglected in the past; we have left the subject of popular health education too much to the nurse, the social worker and the nutrition teacher, and some of these groups, largely owing to our neglect, have gotten somewhat out of hand.

We as the possessors of special knowledge must teach not only the public but also the medical profession. We must combat even in our own ranks the propaganda of the commercial drug houses and the "patent medicine" venders and the manufacturer of commercial vaccines, vitamins or infant foods, with accurate, positive knowledge of disease, of hygiene and of food. Those of us who are instructing students in our medical schools must adequately present the educational aspects of the pediatrician's work, as well as teach the diagnosis and treatment of disease. It is often said that the physician does not know anything about health, that all his instruction and training are about disease. No doubt this has been true in the past. Most of our best medical schools now give some teaching in public health; but few give any proper place to the teaching of personal health, or to the hygiene and care of the healthy child.

I especially wish to emphasize health teaching as a very large part of the function of the physician, and especially of the pediatrician in the future. The hospital, the outpatient clinic, the milk station, the day nursery, the nutrition class, the school and the home must all be used for health education; for the early ages, it must be given to mothers and nurses; later, to the child himself.

We need not be apologetic when we compare the value of such work as this with that which relates to the determination of the velocity of the blood current or surface tension in the body cells. Though not neglecting or underestimating the importance of research in the fundamentals of our science, we must consider it a worth-while job to teach the public the value of what has already been demonstrated in the saving of life, the prevention of disease, and the promotion of normal growth and development. Comparatively few of the members of this society have had the training, or have now the opportunity or the resources for profitable scientific research in the laboratory. This grows more difficult every day. But all of us can have a share, and a large one, in this general campaign of education, which must form the basis of great achievements in the field of preventive medicine.

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THE RELATION OF INFECTIONS OF THE UPPER RESPIRATORY TRACT TO PYELITIS *

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It is a well established fact that pyelitis in infancy and childhood is often associated with, or secondary to, infection of the upper respiratory tract. The exact relationship is at present entirely unknown. It has been assumed that the infection of the nose and throat so lowers the resistance of the patient that it permits the colon bacillus to acquire a foothold in the urinary passages, where it then sets up an inflammatory reaction. Furthermore, pyelitis complicating infection of the upper respiratory tract, or other organs, is not caused by the bacteria producing the primary infection, but almost invariably by the colon bacillus.

By what route the colon bacillus reaches the urinary tract is still unknown, in spite of the great amount of work that has been done on the subject. In the many instances in which urinary cultures have been taken in cases of secondary pyelitis, the infecting organism was the colon bacillus. The primary infection of the upper respiratory tract was either the pneumococcus, a streptococcus or a staphylococcus. Certain authors have proposed the explanation that the primary invader was present in the urine in such small numbers that it was rapidly overgrown by the secondary invader, the colon bacillus. We have never been able to prove the presence of other organisms, even when high dilutions of the urine were used in making plates.

The work of Bumpus and Meisser [1] on the relationship of focal infection to pyelitis in the adult, particularly their experimental results with organisms obtained from the teeth, has opened up a new mode of investigation of this interesting problem. They were able to show that streptococci isolated from the teeth of patients suffering from pyelitis, when injected intravenously into rabbits, tended to localize in the kidney, and there produce focal lesions. Furthermore, they were able to show that, with the focus still intact, only the colon bacillus could be isolated from the urine. For a short time after the removal of the focus, both the streptococcus and the colon bacillus were present in the urine. The streptococcus remained but a short time, and then disappeared, to be followed after an interval by the colon bacillus and a complete clearing up of the pyelitis. These results were later confirmed by Rosenow and Meisser,[2] who were able to produce pyelitis in dogs by infecting the teeth. The teeth were bored into, infected and sealed. Nothing further was done to the animals, and almost without exception they developed pyelitis.

Such striking results made it desirable to conduct similar investigations as to the relationship of extra-urinary infection, and pyelitis in infancy and childhood, when pyelitis was secondary to infections of the upper respiratory tract. Four cases were carefully studied; two of the patients were infants who had developed pyelitis following acute otitis media; in one patient, pyelitis was secondary to acute tonsillitis; the fourth was an older child who developed pyelitis in association with badly infected tonsils and carious teeth. The mode of procedure was as follows:

Cultures in dextrose brain broth were taken from the ear or tonsils, and from the urine, and after twenty-four hours, injected intravenously into rabbits. As rabbits were repeatedly found with infections of the urinary tract,[3] only those animals were used whose urine, on culture, was found to be free from pus, albumin and bacteria. After the injections, the urine of the rabbits was examined at regular intervals for pus and bacteria, and the animals were killed after varying periods of time.

SUMMARY OF THE FOUR CASES

Case 1.—G. W., aged 2½ years, had had an acute attack of tonsillitis in February, 1921, with high fever and considerable adenopathy. After three days there was some improvement, and the temperature dropped to normal, but two days later, it rose again and an acute otitis media developed on the right side. There was a discharge of serosanguineous material, which, on culture, gave *Streptococcus hemolyticus* and a few staphylococci. The temperature gradually came down to normal in two days, only to go up again to 103. On that day the urine, which had been normal up to this time, contained pus 3 and innumerable colon bacilli in 0.5 c.c. of urine. No other organisms were found in the urine. Streptococci and staphylococci isolated from the ear, and colon bacilli from the urine, were injected singly and also in combination.

Case 2.—M. A., a girl, aged 9 months, had been well until one week before. During this week she was restless and the temperature rose to 102 F. An abscess of the middle ear was found and incised, and on culture yielded a hemolytic staphylococcus and nonhemolytic streptococcus. The urine, which on first examination was free from all formed elements, three days after the incision of the ear drum contained large amounts of pus and, on culture, a pure growth of colon bacilli. Animals were injected with cultures from the ear and urine.

Case 3.—R. S., aged 6 months, had had a severe cold for two weeks. Bowel movements had been somewhat more frequent than normal. On the last two days the temperature had risen to 104. At midnight of the night preceding admission, the child had become extremely sick, had rolled up its

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* From the Section on Pediatrics, Mayo Clinic.
* Read before the Section on Diseases of Children at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

1. Bumpus, H. C., Jr., and Meisser, J. G.: Focal Infection and Selective Localization of Streptococci in Pyelonephritis, Study I, Arch. Int. Med. **27**: 326-337 (March) 1921; Foci of Infection in Cases of Pyelonephritis, Study II, J. A. M. A. **77**: 1475-1479 (Nov. 5) 1921.

2. Rosenow, E. C., and Meisser, J. G.: Elective Localization of Bacteria Following Various Methods of Inoculation, and the Production of Nephritis by Devitalization and Infection of Teeth in Dogs, J. Lab. & Clin. Med. **7**: 707-722, 1921-1922.

3. Helmholz, H. F., and Millikin, Frances: The Presence of Bacteria and Formed Elements in the Urine of Rabbits, J. Lab. & Clin. Med. **7**: 589-591, 1922.

eyes, but had had no convulsions. An acute tonsillitis and rhinopharyngitis, with acute redness of both ear drums, were found. Culture taken from the throat revealed a streptococcus and an occasional staphylococcus. The urine, taken at this time, was free from formed elements. A specimen, taken two days after the severe symptoms had arisen, contained pus, albumin and many bacteria, which on culture were found to be

weeks before, lasting about three weeks and then stopping. Two weeks before, the child was suddenly taken ill with severe pain in the left side, followed by vomiting and fever. Since then the temperature had risen to between 102 and 104 each day. There was slight tenderness in the left flank. There were several carious teeth, and infected tonsils with cervical adenitis. The examination otherwise was negative except for

TABLE 1.—*Injections of Colon Bacilli from Urine, and Staphylococci and Streptococci from Ear, Tonsils, Nasopharynx or Teeth of Patients with Pyelitis*

				Observations on the Urine					Necropsy					
									Kidney					
Patient	Organism Injected	Rabbit	Date Injected	Date	Albumin	Pus	Bacteria	Date and Mode of Rabbit's Death	Abscess	Pyelitis	Staphylococcus	Streptococcus	B. coli	Notes
1.	B. coli from urine.....	22	2/16	2/18	..	++	.....	2/23 Chloroformed	0	0	..	..	0	Blood culture, B. coli
				2/22	..	0								
	B. coli from urine.....	21	2/16	2/18	..	+	.....	2/20 Died	0	0	..	..	+	Blood culture, B. coli, pericarditis
	B. coli from urine.....	25	2/16	2/22	..	++	.....	2/22 Chloroformed	0	+	..	..	+	
	B. coli from urine, staphylococcus, and streptococcus from ear	19	2/16	....	..	..	.....	2/17 Died	0	0	0	0	+	Blood culture, B. coli
	B. coli from urine, staphylococcus, and streptococcus from ear	29	2/16	2/18	..	0	.....	2/18 Chloroformed	0	0	+	+	+	Blood culture, streptococcus, staphylococcus, and B. coli
	Staphylococcus and streptococcus from ear	21	2/16	2/18	..	++	.....	2/22 Chloroformed	+	+	+	0	..	
				2/22	..	+++								
	Staphylococcus and streptococcus from ear	30	2/16	2/18	..	+++	.....	2/23 Chloroformed	+	+	+	0	..	Abscesses of the muscle
2.	B. coli from urine.....	79	5/26	5/27	..	0	B. coli	5/29 Died	0	0	..	..	0	Blood and brain, B. coli, meningitis
	B. coli from urine.....	82	5/26	5/27	..	0	0							
				5/30	..	0	0							
				6/ 1	..	0	0							
				6/ 8	..	0	0							
	B. coli from urine, staphylococcus, and streptococcus from ear	83	5/26	5/27	..	+	Staphylococci	6/21 Chloroformed	0	0	0	0	0	Pus in knee joint
				5/30	..	+	Staphylococci							
				6/ 1	..	0	Staphylococci							
				6/ 8	..	+++	Staphylococci							
				6/15	..	+	0							
	B. coli from urine, staphylococcus and streptococcus from ear	84	5/26	5/27	..	0	Staphylococci and B. coli	6/ 1 Chloroformed	+	+	+	0	0	
				5/30	..	+								
	Staphylococcus and streptococcus from ear	85	5/26	5/27	..	0	Staphylococci	5/31 Died	0	+	+	0	..	Pus in knee joint
				5/30	..	++	Staphylococci							
	Staphylococcus and streptococcus from ear	80	5/26	5/27	..	0	0	6/ 3 Chloroformed	+	+	+	0	..	Abscesses of muscle and heart
				5/30	..	+	Staphylococci							
3.	B. coli from urine.....	263	7/19	7/21	..	0	0	7/31 Chloroformed	0	0	..	..	0	
	B. coli from urine.....	264	7/19	7/21	..	0	0	7/31 Chloroformed	0	0	..	..	0	
	B. coli from urine, staphylococcus and streptococcus from throat	262	7/19	7/21	..	+	B. coli and staphylococci	7/24 Chloroformed	+	+	+	0	0	Pus in knee joint
	B. coli from urine, staphylococcus and streptococcus from throat	265	7/19	7/21	..	0	0	7/31 Chloroformed	0	0	0	0	0	
	Staphylococcus and streptococcus from throat	266	7/19	7/21	..	+++	Staphylococci	7/28 Chloroformed	+	+	+	0	..	
	Staphylococcus and streptococcus from throat	267	7/19	7/21	..	+++	Staphylococci	7/24 Chloroformed	+	+	+	0	..	
4.	Streptococcus from swabbings of tonsils	194	3/23	3/24	++	Casts	.....	3/28 Chloroformed	0	0	..	0	..	
	Streptococcus from swabbings of tonsils	195	3/23	3/24	0	0	.....	3/28 Chloroformed	0	0	..	+	..	Old chronic nephritis
	Streptococcus from swabbings of tonsils	196	3/23	3/24	0	0	.....	3/28 Chloroformed	0	0	..	0	..	
	Emulsion of excised tonsils	197	3/29	....	..	..	.....	3/31 Chloroformed	0	0	0	0	..	
	Emulsion of excised tonsils	199	3/29	....	..	..	.....	4/ 1 Chloroformed	0	0	0	0	..	
	Streptococcus from excised tonsils	198	3/30	....	..	..	.....	4/ 1 Chloroformed	+	+	..	0	..	Abscess in papilla
	Streptococcus from excised tonsils	200	3/30	4/ 1	..	+	.....	4/ 1 Died	+	0	..	+	..	Old chronic abscesses in papillae
	B. coli from urine.....	201	4/ 1	....	..	..	.....	4/ 3 Chloroformed	0	0	..	..	+	
	B. coli from urine.....	202	4/ 1	4/ 4	..	+	.....	4/ 4 Chloroformed	0	0	..	..	0	
	B. coli from urine.....	203	4/ 1	....	..	..	.....	4/ 4 Chloroformed	0	0	..	..	0	
	Staphylococcus and streptococcus from teeth	209	4/ 7	4/14	..	0	.....	4/14 Chloroformed	0	0	0	0	..	
	Staphylococcus and streptococcus from teeth	210	4/ 7	4/14	..	0	.....	4/14 Chloroformed	0	0	0	0	..	
	Staphylococcus and streptococcus from teeth	211	4/ 7	4/14	..	0	.....	4/14 Chloroformed	0	0	0	0	..	

a pure culture of the colon bacillus. Animals were injected with a twenty-four hour culture obtained from the throat and urine.

CASE 4.—R. S., aged 8 years, whose past history was negative except for uneventful measles, pertussis and chickenpox, was brought for examination because of hematuria, fever, and pain in the left side. The onset had occurred about eight

a very large amount of pus, and occasional red blood cells in the urine, which on culture gave innumerable colon bacilli in pure culture. Roentgenograms of the kidneys were negative. Ureteral catheterization revealed pus 3 and innumerable colon bacilli in 0.5 c.c. of urine from the right side, and pus 3 and innumerable colon bacilli in 0.5 c.c. of urine from the left side. Animal inoculations were made with cultures taken

TABLE 2.—*Summary of Experiments*

Case	Animals Injected with B. coli from Urine: Number Injected	Animals Injected with B. coli from Urine: Number with Renal Lesions	Animals Injected with Staphylococcus and Streptococcus from Ear, Throat, Tonsils or Teeth: Number Injected	Animals Injected with Staphylococcus and Streptococcus from Ear, Throat, Tonsils or Teeth: Number with Renal Lesions	Animals Injected with B. Coli from Urine, and Staphylococcus and Streptococcus from Ear, Throat or Tonsils: Number Injected	Animals Injected with B. Coli from Urine, and Staphylococcus and Streptococcus from Ear, Throat or Tonsils: Number with Renal Lesions
1	3	1	2	2	2	..
2	2	..	2	2	2	1
3	2	..	2	2	2	1
4	3	..	10	2	..	..

from swabs of the tonsils, from the depths of the tonsil after removal, and from the organisms isolated from the carious teeth, as well as with the cultures isolated from the urine.

cultures is not in relation to the percentage make-up of the cultures. In practically all of the cultures injected, the predominant organism was the streptococcus, with only an occasional staphylococcus. It will be noted, however, that the organisms isolated from the kidney were almost invariably staphylococci, and that these staphylococci produced lesions in the cortex, medulla or pelvis. It is well known that any staphylococcus, on intravenous injection, tends to produce focal lesions in the kidney, muscles and heart. It seemed important, therefore, to perform a large series of control experiments in order to determine whether the staphylococci isolated in this way have any greater tendency to localize in the kidney than those from other sources. As may be noted in Table 2, a like number of control injections was made. In certain instances it

TABLE 3.—*Control Injections of Staphylococci and Streptococci from Ears, Tonsils and Throats of Patients Having no Pyelitis*

Patient	Organism Injected	Rabbit	Date Injected	Observations on Urine: Date	Observations on Urine: Albumin	Observations on Urine: Pus	Date and Mode of Rabbit's Death		Necropsy: Kidney: Abscess	Necropsy: Kidney: Pyelitis	Necropsy: Kidney: Staphylococcus	Necropsy: Kidney: Streptococcus	Notes
100.	Staphylococcus from discharging ear	191	3/21	3/22	..	+	3/23	Chloroformed	+	0	+	..	
	Staphylococcus from discharging ear	192	3/21	3/22 3/23	+ ..	0 +	3/23	Chloroformed	+	0	+	..	Blood culture, staphylococcus
	Staphylococcus from discharging ear	193	3/21	3/22	..	0	3/23	Chloroformed	0	0	0	..	
154.	Staphylococcus and streptococcus from normal throat	271	8/ 1	....	..	..	8/ 4	Chloroformed	0	0	0	0	Chronic nephritis
	Staphylococcus and streptococcus from normal throat	273	8/ 1	8/ 4	..	+	8/ 4	Chloroformed	+	0	0	0	
178.	Staphylococcus from discharging ear	297	10/15	....	..	..	10/17	Died	+	0	+	..	Abscess in liver, blood culture staphylococcus
	Staphylococcus from discharging ear	298	10/15	....	..	..	10/16	Died	0	0	+	..	Blood culture, staphylococcus
	Staphylococcus from discharging ear	296	10/15	....	..	..	10/19	Died	+	0	+	..	Abscesses in liver, blood culture negative
12.	Staphylococcus and streptococcus from tonsils	56	3/24	....	..	..	3/28	Chloroformed	0	0	0	0	
	Staphylococcus and streptococcus from tonsils	57	3/24	....	..	..	3/29	Chloroformed	0	0	0	0	
15.	Staphylococcus and streptococcus from tonsils	62	3/26	....	..	..	4/ 1	Chloroformed	0	0	0	0	
17	Staphylococcus and streptococcus from tonsils	64	3/26	....	..	..	4/ 1	Chloroformed	0	0	0	0	Chronic nephritis
85.	Staphylococcus and streptococcus from tonsils	173	2/ 4	....	..	..	2/ 5	Chloroformed	0	0	0	0	
181.	Staphylococcus and streptococcus from throat	314	10/28	....	..	..	11/ 1	Chloroformed	+	0	+	0	Pus in knee joint
	Staphylococcus and streptococcus from throat	315	10/28	....	..	..	11/ 1	Chloroformed	0	+	+	0	
	Staphylococcus and streptococcus from tonsils	351	11/ 8	....	..	..	11/16	Died	0	0	0	0	
	Staphylococcus and streptococcus from tonsils	352	11/ 8	....	..	..	11/15	Chloroformed	0	0	0	0	
183.	Staphylococcus and streptococcus from throat	320	10/31	....	..	..	11/ 7	Chloroformed	+	0	+	0	Abscess in heart muscle
184.	Staphylococcus and streptococcus from throat	332	11/ 2	....	..	..	11/ 8	Chloroformed	+	0	+	0	
	Staphylococcus and streptococcus from throat	333	11/ 2	....	..	..	11/ 8	Chloroformed	0	0	0	0	
187.	Staphylococcus and streptococcus from throat	346	11/ 7	....	..	..	11/15	Chloroformed	0	0	0	0	
	Staphylococcus and streptococcus from throat	347	11/ 7	....	..	..	11/18	Chloroformed	0	0	0	0	
188.	Staphylococcus and streptococcus from tonsils	342	11/ 7	....	..	..	11/13	Chloroformed	+	0	+	0	Abscesses in heart and shoulder muscles; pus in knee joints
	Staphylococcus and streptococcus from tonsils	343	11/ 7	....	..	..	11/13	Chloroformed	+	0	0	0	

The results of the experiments in these four cases have been tabulated in Table 1, so that they may be readily compared. These experiments show clearly that the organisms isolated from the throat have a much greater tendency to localize in the kidney than do the colon bacilli isolated from the urine. This is in keeping with the experiments of Helmholz and Beeler,[4] in which colon bacilli isolated from the urine of human pyeltis tended to localize in the kidneys of rabbits in only about 12 per cent. of the experiments, and also tended to localize in the gallbladder and other regions. The frequency of localization of the ear and throat was found that the staphylococci isolated from the ears and other sources did not tend to localize in the kidney; in staphylococci isolated from individuals without renal lesions, there was a quite constant tendency to localize in the substance of the kidney. It was seen, therefore, that the apparent tendency of staphylococci to localize in the kidney in these cases was practically no greater than that of staphylococci obtained from other sources. The surprising fact was the almost total absence of the streptococci in the cultures from the kidney.

In only one of ten injections did the colon bacillus isolated from the urine produce lesions in the substance of the kidney or the pelvis, corresponding very closely to the 12 per cent. positive results of Helmholz and

4. Helmholz, H. F., and Beeler, Carol: Experimental Pyelitis in the Rabbit, J. Urol. 2: 395-419 (Oct.) 1918.

Beeler with similar cultures. In the six animals injected with mixtures, two had lesions, and in both, the staphylococcus was isolated from the renal lesions. In one instance in which there were no renal lesions, staphylococci, streptococci and colon bacilli were isolated from the heart's blood. Seven of the sixteen animals in which the organisms from the primary infection were injected received streptococci alone, and two of them had lesions. The other nine received injections of a mixture of streptococci and staphylococci, and six had lesions; in none of these was the streptococcus isolated. In the staphylococcus controls, the results vary. There were two infections of the kidney from nine injections with staphyloccocus from the tonsils, four from six cultures from the ear, and five from nine cultures taken from the throat. The entire group of experiments is summarized in Table 2 in order to show the comparative results of the experiments.

COMMENT

These experiments demonstrate that staphylococci have a tendency to localize in the kidneys of the rabbit on intravenous injection. The tendency is no greater in staphylococci isolated from patients with involvement of the urinary tract than in those patients without such involvement. When staphylococci and streptococci were injected, it was only exceptionally that the urine contained any bacteria other than staphylococci. If it were possible to transfer these results to human cases, it would mean that the primary acute infection has no direct bearing on the invasion of the urinary tract by the colon bacillus. Futhermore, in the infections studied, it is probable that the streptococcus, rather than the staphylococcus, was the organism responsible for the primary infection. Experiments with the colon bacillus isolated from spontaneous pyelitis in the rabbit show that the colon bacillus may take on specific powers of localization on intravenous injection; this has been successful only in exceptional instances with colon bacilli isolated from pyelitis in man. Elective localization with the streptococcus from human material in the rabbit has been repeatedly demonstrated. It would seem, therefore, as a result of our experiments that the growth of the colon bacillus in the urinary tract is the result of a favorable medium produced by a lowering of the resistance of the individual, rather than by a specific tendency on the part of the streptococcus, or staphylococcus, to localize in the kidney and prepare the soil for the colon bacilli.

It is questionable, furthermore, whether the pyelitis of infancy complicating an acute infection is to be compared with the chronic cases studied by Bumpus and Meisser, particularly since the removal of the primary focus in the cases studied was associated with the temporary appearance of the organism in the urine, and then with the clearing up of the pyelitis.

It has been repeatedly observed that chronic pyelitis which persists in the presence of infected tonsils will clear up with their removal. Case 4 is a case in point. The treatment was discontinued after the removal of the tonsils and the carious teeth, and the pyelitis, which had persisted in spite of treatment up to this time, cleared up. In like manner, Marriott [5] and Langstein [6] have called attention to a group of nutrition disturbances complicated by pyelitis in which the pyelitis clears up as soon as the nutritional condition of the infant is improved. Thus, the lowered resistance of the respiratory infections and nutritional disturbances seems to predispose to pyelitis, rather than some specific infection of the kidney, which locally prepared the way for the colon infection. Only when we know definitely that the colon bacillus is carried to the kidney by the blood stream and not to the pelvis by a reflux from the bladder through the incompetent ureteral valve, shall we be able to assume that there is a local action of the primary infection in the kidney.

5. Marriott, W. M., in discussion on Treatment of Pyelitis, J. A. M. A. **79**: 290 (July 22) 1922.
6. Langstein, L.: Zur Therapie der Pyelitis im Säuglingsalter, Therap. Halbmonatsh. **34**: 695, 1920.

TABLE 4.—*Summary of Control Experiments*

Animals Injected with Staphylococci and Streptococci		
Source of Cultures	Number Injected	Number with Renal Lesions
Tonsils	9	2
Ear	6	4
Throat	9	5

CONCLUSIONS

1. In four cases of pyelitis secondary to upper respiratory infection, the organism causing the primary infection did not reveal a tendency to localize in the kidney when injected intravenously into rabbits.

2. No evidence was found that would tend to show that the primary infection acts specifically; but it probably produces a general lowering of resistance of the urinary tract to the colon bacillus, and gives it an opportunity to develop and produce inflammation.

ABSTRACT OF DISCUSSION

DR. LANGLEY PORTER, San Francisco: The points brought out illustrate what an enormous amount of experimental work properly equipped men can do to prove facts that are perfectly obvious clinically. One of the things that have been known ever since Ashley first taught us anything about the clinical side of this subject is that a child may develop a pyelitis, and apparently be cured; but whenever it develops ear or a throat trouble, or an infection of any other part, there comes a lighting up, so to speak, of the pyelitis. One of the most tricky things we have to deal with in clinical medicine undoubtedly is that fact, a fact that has caused many a good man to tumble, satisfied with a diagnosis of pyelitis, which was merely secondary. The points brought out experimentally by Dr. Helmholz bear out the work that Barhardt, who unfortunately died early in his career, reported about twenty years ago from the London Hospital. He was one of the men who first described the multiple honeycombed infected kidney, which also bears the name of Brewer of New York, the Barhardt-Brewer kidney. In those cases it was noted many times that the only organism unduly prominent was the colon bacillus, while the kidney lesions themselves brought other organisms, of various kinds. Of course, bacteriology of that date was not nearly so accurate an art as it is at present. The work of Dr. Helmholz bears that out. Also, investigations show that we shall find one kidney infected, carrying a great many colon bacilli in the urine, and another kidney carrying a very few streptococci.

DR. H. F. HELMHOLZ, Rochester, Minn.: I should like to add that, through the work of Churchman on the use of dyes, we now have a better method of studying urinary cultures. By the addition of acid fuchsin, it is possible to kill off practically all of the colon bacilli in the urine, and it is possible that, in some instances, we may now be able to get the so-called primary infecting organisms that we were formerly unable to obtain, owing to an overgrowth of the colon bacillus.

TYPHUS FEVER IN SOUTHERN CALIFORNIA *

L. M. POWERS, M.D.
LOS ANGELES

My purpose is to call attention to the danger of typhus fever becoming endemic in the southwestern portion of the United States, and to urge the local authorities to action in preventing such a condition. Therefore, this paper is limited in its scope.

The first recognized and recorded cases of typhus fever in southern California occurred in the summer of 1916, when many Mexicans came to this section during a civil war in their own country. Many of these were of the peon class and came from districts of Mexico where this disease was endemic. The first case seen in Los Angeles came from a laboring camp of the Santa Fe Railroad in Arizona. The patient had visited El Paso on the border of old Mexico, and he was dead when I saw him. I made the diagnosis in collaboration with the necropsy surgeon of Los Angeles County. The patient's wife was taken to a Phoenix hospital from her home in Arizona as a suspected case of typhoid, and died. One of the first cases occurred in a young lawyer who had a large Mexican clientele and who also had visited the Mexican border. He had a light form, and recovered. No vermin were found on him. Several cases were brought into the Los Angeles County Hospital from railroad camps. Most of them had become infected before having come to southern California. Few secondary cases occurred.

Typhus at Los Angeles

Case	Age	Sex*	Taken Sick	Entered Hospital	Nativity	Length of Residence in County	Laboratory Findings
1	50	♂	7/ 4/22	7/11/22	U. S.	21 yrs.	Weil-Felix reaction positive
2	24	♂	3/ 6/22	3/13/22	U. S.	2 yrs.	Weil-Felix reaction positive
3	60	♂	.....	7/13/22	U. S.	1 mo.	Weil-Felix reaction positive
4	..	♂	.....	.....	.....	.....	Negative (?)
5	23	♂	10/ 7/22	10/15/22	Canada	3 yrs.	Weil-Felix reaction positive
6	29	♂	10/13/22	10/21/22	U. S.	3 mo.	Weil-Felix reaction positive
7	22	♂	10/15/22	10/24/22	Mexico	4 mo.	Weil-Felix reaction positive
8	22	♂	11/ 5/22	11/13/22	Mexico	2 yrs.	Weil-Felix reaction positive
9	19	♀	11/15/22	11/18/22	Mexico	2 yrs.	Negative (?)
10	36	♀	12/ 4/22	12/11/22	Russia	2 yrs.	Weil-Felix reaction positive
11	72	♂	3/11/23	3/11/23	England	4 yrs.	Weil-Felix reaction positive

* In this column, ♂ indicates male; ♀, female.

Because of the low intelligence of many of these peons, they were not allowed to stop in the city, but were taken by the railroad company to camps along the railroad, where they could be educated to follow instructions and to protect themselves from accident. For this reason, we presume, no definite spread of the disease occurred in the city.

Soon after the first appearance of typhus in California, the United States government established quarantine and disinfecting stations at the border. Together with the state, it secured cooperation at the various railroad camps along the different railroads in the state in delousing the inmates of the camps, thereby preventing further extension of the disease.

There have been reported to the state board of health twenty-eight cases since the spring of 1916. Of these, twenty occurred in southern California. The United States Public Health Service and the state board of health, by prompt activities, succesfully prevented epidemics of the disease.

In Los Angeles, in the last eighteen months, several cases have occurred among a different class of people from those who first brought the disease to southern California. All of those who have had the disease during the last eighteen months were residents of the city, and many of them were ordinarily clean and free from vermin; but they had visited Mexican settlements or traveled on public conveyances.

Dr. H. B. Keyes, an intern at the County Hospital of Los Angeles, has kindly furnished me with full reports of eleven cases treated in that hospital during the last eighteen months. A summary of these is given in the accompanying table.

The histories show that all the patients were residents and that they were taken sick at different times and in different locations; so far as we can learn, there has been no common source of infection among this group of cases. Evidently each patient was infected by the louse, but where and how we do not know. Nor do we know how long a louse will live in clothing or in a house, or how long, after having been infected, the louse can convey the disease.

There is danger of the disease becoming endemic, particularly if a mild form is introduced, which might not be recognized on all occasions, thereby infecting localities in different cities, and the necessary precautions would not be taken to arrest and prevent the extension of the disease. It is the duty of each community, therefore, to be on guard against this disease and to adopt such measures as will prevent its spreading and becoming endemic. The public should be taught the necessity of precaution against this loathsome insect, because it conveys not only typhus but also other diseases. The public is not aware as to how typhus fever is transmitted, consequently, the people are ignorant of the necessary means to be taken to prevent this disease from becoming endemic in their community.

The destruction of lice in the schools, in lodging houses, and in fact wherever the louse may be found, is essential for the protection of the general health.

The history of typhus has shown that the mild or latent form becomes more virulent during war time, famine, or other lowered condition of the general health. Each community should protect itself by establishing delousing stations at its hospitals, clinics and jails.

We hope to see an organized crusade against the louse in every community bordering on Mexico, the source of our infection.

The health commissioner has recommended the following to the authorities of Los Angeles:

HYGIENIC STATION

There is much need of an institution for improving the personal hygiene of a class of people who are dirty and infected, and who have no regard for cleanliness and no fear of bringing dangerous troubles to others.

These people, if they had a will or desire to be clean, have no facilities. A properly installed institution, equipped with means of sterilizing or delousing, with wash tubs and baths

* Read before the Section on Preventive and Industrial Medicine and Public Health at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

having hot and cold water, should be provided, so that any person who wishes to wash his clothing, sterilize the same and take a bath may do so. Those who do not wish to be cleaned may, by ordinance, be forced to clean up. These people are as dangerous to the public as those infected with any form of disease.

ABSTRACT OF DISCUSSION

DR. WALTER M. DICKIE, Sacramento, Calif.: Although typhus fever has been endemic in southern California, we have felt very little alarm with reference to it on account of the efficiency of the health department there, and also on account of the climatic conditions existing in that part of the state. It is very difficult to control or eradicate this disease when it appears in our large cities, especially on account of public opinion and also on account of the expense that is necessary to carry on an extensive campaign of sanitation; and, of course, that is very difficult at the present time, as it is not compatible with the wave of economy that is spreading through this part of our country, as well as through the country as a whole. I believe that investigations into these cases should be made in the district within which they are found, especially in the district in which the patients live, and that these investigations should cover quite an extensive area, and that all cases of recent sickness should be investigated and a bacteriologic examination made of the people living within that district. Also, if cases are found after a bacteriologic examination, the disinfestation of the people should be undertaken, and a general vigorous campaign of sanitation at the same time. It may be necessary, after finding infestation, that the individual be removed from the district and a thorough disinfection and cleaning up follow. I believe also, as Dr. Powers has suggested, that it would be necessary to have a delousing station. Of course, it is a good deal easier to handle these cases when they occur among large groups, for instance, in the army, or where people come from ships and can be controlled absolutely. Probably it would be very difficult to get people to go voluntarily through delousing stations. It would also be difficult to round them up. I believe, however, that it is important that we have such a station, but that the individual investigation from an epidemiologic standpoint is probably the most essential undertaking.

DR. WILLARD J. STONE, Pasadena, Calif.: Although I have not seen all of the patients with typhus fever treated in the Los Angeles Hospital in the last two or three years, I have seen a sufficient number to warrant a brief review of the clinical symptoms. Most of these patients were admitted on an incorrect or tentative diagnosis, usually measles or typhoid. It has always been a question in the hospital as to whether or not some of these cases diagnosed, eventually, as typhus fever were not, in fact, instances of Rocky Mountain spotted fever. I think the question may be brought up also as to whether some of the cases occurring farther north that were diagnosed as Rocky Mountain spotted fever may not have been typhus. The interesting fact, so far as the mild types of the disease are concerned, is that in some instances typhus was not recognized as such until the patient had been in the hospital two or three days, and yet there were no instances of cross infection. The main symptom in the early diagnosis of this condition is the rash, larger and smaller maculopetechial spots occurring in the same area. There is also a peculiar erythematous mottling that is quite characteristic. In many cases the temperature is not high, that is, no more than a degree or two of fever. There is a tendency to delirium and mental cloudiness, which is also quite characteristic. A relative lymphocytosis and leukopenia usually are present, with a negative Widal reaction and a negative typhoid blood culture. In all cases in which the diagnosis of typhus fever has been made in the Los Angeles County Hospital, so far as I am informed, there has been a positive Weil-Felix reaction.

DR. J. W. KERR, Washington, D. C.: In times past, typhus fever has been regarded as one of the great epidemic diseases of the world, and provision has been made annually for its prevention since in the early eighties when Congress first made provision for the control of this and other major quarantinable diseases. It was generally regarded as a ship-borne disease. It is also a disease of disturbed times. Until recently, we, as health officers, gave little thought to the danger of the disease from over our borders. At all the maritime ports we have quarantine stations, and we have had the necessary preparation for taking care of outbreaks of typhus aboard ship. Typhus fever has occurred endemically in Mexico since shortly after the conquest. Many outbreaks of the disease occurred in Mexico in the nineteenth century; perhaps the worst was in 1861. Notwithstanding the close proximity of Mexico to the United States, during the Civil War we were notably free from occurrences of this disease among the troops of either the Confederate or the Union army. Only when conditions in countries become such as to give rise to famine and squalor does typhus fever attract attention. In 1911, the Public Health Service actually authorized and carried out an expedition into Mexico to determine the identity of "tabardillo" and Rocky Mountain spotted fever. These two diseases proved to be different. The investigators, however, were fortunate in determining the identity of tabardillo and the so-called Brill's disease. The fact that a disease had been recognized in New York as new and case after case reported for a period of twenty years by men so eminent as Dr. Brill, shows how difficult its recognition is, and how possible it is for endemic foci of disease to occur without recognition. The louse is the single carrier of the disease. We speak rather loosely, however, of delousing. The general impression seems to be that delousing is about as simple as taking off one's clothes. It is not a simple matter. Passengers from Mexico enter by two or three main routes. The patients that are likely to transmit typhus fever are the peons, who have been brought to this country to overcome the labor shortage on the railroads and in the mines. The railroads, being interested, have established observation stations in cooperation with the state and federal authorities, and they have declined to carry passengers who have not complied with the regulations prescribed. This has been a wonderful help to the health authorities in the control of the disease. But, even with these precautions, measures taken on the border cannot be 100 per cent. perfect. If we make it 100 per cent. perfect, we limit commerce and defeat the purpose which one is attempting to accomplish, because it is difficult to patrol 1,500 or 2,000 miles of border. Therefore, the most important single thing to do to prevent typhus fever in the Southwest is for physicians to become familiar with the manifestations of the disease, in order that it shall not appear in the mountains of the southern section in an essentially endemic form as it did in New York for almost twenty years. We are now making use of a diagnostic test on which federal health officers have relied greatly, namely, the Weil-Felix reaction. If the reaction is positive, the quarantine officer is almost in duty bound to hold the passenger, sometimes at great disadvantage to the ship. Typhus fever disappears during the hot season, and it is not a disease of the tropics. We therefore have the problem before us of determining the maximum temperature and other atmospheric conditions under which this disease develops and continues. There is one area of the Rio Grande Valley from which cases have been reported, the so-called attenuated disease "Rio Grande fever." This disease deserves greater study. It may be analogous to the cases of Brill's disease which occurred in New York.

DR. S. W. WELCH, Montgomery, Ala.: Last summer we had four cases in isolated districts in Alabama that gave the Weil-Felix reaction and all of the clinical symptoms of typhus fever. They were confirmed by competent authority as being cases of typhus fever. The patients were residents of the community in which they lived, and had not been away from those communities, in two instances, in more than two years. None had been in contact with typhus fever. Subsequent to that we had an outbreak of dengue fever in Alabama, and in the course of the summer a number of other cases gave the Weil-Felix reaction. I am throwing these facts out as a suggestion for contemplation.

DR. L. M. POWERS, Los Angeles: What we are anxious to do and are more particularly concerned about is to prevent the disease becoming endemic in the larger cities around the

borders of old Mexico. Unless these cities take notice and prevent the spread of this disease it will become endemic, if it has not already become so in Los Angeles and some of the southern parts of California. I know of no better means of control than the establishment of delousing stations, because the louse transmits the disease. Of course, we all know that Los Angeles is the haven of tramps, and of every one else, so far as that is concerned. If, with the cooperation of the police, we could delouse a portion of the lousy, and if other cities would do the same, we should be prepared to meet the epidemic whenever it would arise. As it is, many of these cases are seen by some one who never saw a case of typhus fever and has no idea of it. There may be no eruption or anything to cause the attending physician to suspect this disease. Some of the cases are diagnosed as pneumonia, some as influenza, some as typhoid fever, and some as measles. The chances of our getting hold of those cases in time to prevent the spread are very remote.

EXPERIMENTAL SCARLET FEVER*

GEORGE F. DICK, M.D.
AND
GLADYS HENRY DICK, M.D.
CHICAGO

A nurse who was taking care of a patient with scarlet fever acquired the disease in a mild but typical form. Two days before the onset of symptoms, she noticed that she had a sore finger. On the second day of the disease, when the rash was intense, a few drops of pus were obtained from the lesion on her finger.

Gram, Giemsa and Levaditi stains were made of direct smears of this pus. They contained many polymorphonuclear leukocytes and numerous single and paired gram-positive cocci; also an occasional gram-positive diphtheroid bacillus. Cultures of the pus were made on the surface of freshly prepared sheep's blood agar plates. Anaerobic cultures were made in tubes of ascites broth which contained pieces of fresh rabbit kidney, and on human blood agar slants. Smears and dark field preparations of the anaerobic cultures were examined at frequent intervals during two weeks' incubation. No organisms were found in them other than the hemolytic streptococcus and the diphtheroid bacillus, which grew on the aerobic blood agar plates.

At the end of twenty-four hours' incubation, the aerobic sheep's blood agar plates showed many colonies of a hemolytic streptococcus and a few colonies of the diphtheroid bacillus noted in direct smears. The hemolytic streptococcus colonies were about 2 mm. in diameter, with a hemolyzed area about 4 mm. across. They were translucent gray, with an even outline and an umbilicated surface. On these first plates there was no green color around the colonies. In later plates of a pure culture of the hemolytic streptococcus, a faint green ring was frequently seen at the periphery of the hemolyzed zone. This streptococcus produced acid constantly in mannite, dextrose, lactose, saccharose, maltose, galactose, dextrin, salicin, and raffinose fuchsin broth, and in milk. It did not ferment dulcite or inulin.

An apparently pure culture of the streptococcus was obtained by plating out single colonies. During the two months following its isolation, no organisms other than the hemolytic streptococcus were demonstrated in this culture. It was repeatedly plated out and single colonies were again plated out. Various types of anaerobic cultures were made and examined in the dark field. Gram, Giemsa and Levaditi stains of the various types of subcultures were examined at frequent intervals, without result.

Five volunteers selected and observed, as reported in previous experiments,[1] were inoculated by swabbing on the tonsils and pharynx 4 day old cultures of the hemolytic streptococcus grown on sheep's blood agar slants.

Three of these experiments were entirely negative. In one volunteer the inoculation was followed by a sore throat and fever without a rash.

This was a young man, aged 27. He had no symptoms or fever on the first and second days after inoculation. On the third day, fifty-four hours after inoculation, he complained of a sore throat and headache and some general malaise. The pharynx was reddened. The tonsils were swollen. The cervical lymph glands below the angle of the jaw on each side were slightly enlarged and tender. The temperature by mouth was 100 F. There was no rash on the soft palate or on the skin. The next day the highest temperature by mouth was 99.6. The general condition was better. The throat was still red, and the cervical lymph glands were larger. On the fifth day after inoculation, the temperature was normal, the throat was less red, and the cervical lymph glands were less tender. The patient made a rapid and complete recovery.

The fifth volunteer, who had been inoculated with the hemolytic streptococcus after it had been grown on artificial medium three weeks, developed typical, mild scarlet fever.

This was a woman, aged 25. Forty-four hours after inoculation, she complained of a sore throat, headache, backache and general malaise. She was nauseated, but did not vomit. Her temperature by mouth was 100.8 F. There was a faint rash on the skin of the abdomen and chest. During the afternoon, the temperature rose to 101. There was a rash on the soft palate. The rash on the skin had become more intense and spread to the arms and legs. It was a typical scarlatinal rash. The leukocyte count at this time was 18,600, with 76 per cent. polymorphonuclear leukocytes. On the fourth day after inoculation and the second day of the disease, the highest temperature was 101.2. The rash was still intense. On the third day of the disease, the patient felt better. Her highest temperature that day was 100. The rash had not faded. On the fifth day the temperature returned to normal, and the rash began to fade. Recovery was uncomplicated. On the second day of illness there was a trace of albumin in the urine. During convalescence, the urine was normal. On the tenth day, the skin at the tips of the fingers began to break. During the third week, definite desquamation of the fingers and toes began. At the end of the third week, the hands and feet presented a ragged appearance, owing to the tags of skin hanging from them. By the end of the fourth week, desquamation was almost complete.

Bottles of sheep's blood agar were prepared by adding a quantity of bouillon to the agar before it solidified. This resulted in a large amount of condensation fluid. These bottles were inoculated with the hemolytic streptococcus and incubated four days. The condensation fluid was then passed through Berkefeld V filters. Part of each filtrate was cultured and part was immediately swabbed on the tonsils and pharynx of a volunteer. Cultures of the filtrates were uniformly sterile. During the second month after its isolation, filtered cultures of the hemolytic streptococcus were inoculated into five volunteers. During the ten or twelve days that followed the filtrate inoculations, all of these volunteers remained well. They had no sore throat, fever or rash.

On the eleventh day following inoculation with the filtrate, four of the volunteers were inoculated with an

* From the John McCormick Institute for Infectious Diseases.

1. Dick, G. H., and Dick, G. F.: Experimental Inoculations in Scarlet Fever, J. A. M. A. 77: 782-785 (Sept. 3) 1921.

unfiltered 4 day old culture of the hemolytic streptococcus. After this second inoculation, two remained well without any evidence of scarlet fever. One complained of some general malaise and sore throat fifty-four hours after inoculation with the unfiltered culture. The temperature by mouth was 100 F. The anterior pillars of the fauces were reddened, and the tonsils were somewhat swollen. There was no rash on the palate or on the skin. The next morning, the temperature was 101.4. The throat was still red, but there was no rash. During the afternoon of that day, the temperature fell to normal. There were no further symptoms.

One volunteer remained well until the fifth day following inoculation with the unfiltered culture. On that day he complained of a sore throat. The pharynx was reddened, and the cervical lymph gland below the angle of the jaw on the right side was slightly enlarged but not tender. There was no fever and no rash. The next day the throat felt better. No further symptoms developed.

The other volunteer of this series, a woman, aged 23, was inoculated with an unfiltered culture of the hemolytic streptococcus on the thirteenth day after inoculation with the filtered culture.

Just forty-eight hours after inoculation with the unfiltered culture, she complained of a slight sore throat and some general malaise. Four hours later the temperature by mouth was 99.4 F. Her face was flushed. The pharynx and anterior pillars were reddened. In the evening of the third day after inoculation with the unfiltered culture, there was a faint, but definite, scarlatinal rash over the chest and abdomen and in the axillae. On the morning of the fourth day after inoculation and the second day of illness, the temperature was 100.8. There was a rash on the soft palate. The tonsils were moderately swollen. The cervical lymph glands on both sides were enlarged and tender. The rash was more intensely red and had spread over the entire body. It was a typical scarlatinal eruption of moderate intensity. The leukocyte count was 17,800, with 81 per cent. polymorphonuclear leukocytes. The next day the highest temperature was 99.8. The rash was still present. On the fifth day following inoculation and the third day of the disease, the temperature fell to normal. The urine was normal except for a trace of serum albumin on the second and third days of the disease. The rash began to fade on the fourth day. There was some early desquamation on the body. The skin at the tips of the fingers began to show small, opaque white areas at the beginning of the third week. By the end of the third week, desquamation of the hands and feet was marked. It was complete at the end of five weeks.

COMMENT

The two cases of experimental scarlet fever reported were probably caused by the hemolytic streptococcus or by some unrecognized organism closely associated with it in cultures.

The second case reported indicates that, if such an unrecognized organism was present, it did not pass through a Berkefeld V filter.

These experiments do not justify the conclusion that all cases of scarlet fever are caused by the hemolytic streptococcus described.

Rest a Prescriptive Medicine.—Rest is really a potent medicine, to be prescribed and "dosed out" only according to the requirements of each individual case and with discretion, by physicians who understand its use. Discipline, regulation of life, is really the keynote to success in treatment—with rest always the basis.—A. K. Krause: Rest and Other Things, p. 17.

STUDIES ON ANEURYSMS

II. ANEURYSMS OF THE AORTA *

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AND
MARION HAGUE REA, A.B., M.D.
PHILADELPHIA

In a previous paper we [1] have presented statistical data on the incidence, relative frequency in different countries, location, race, age, sex and number of aneurysms in general, and of 321 internal aneurysms in particular which were studied postmortem at the Philadelphia General Hospital and the Hospital of the University of Pennsylvania.

The present paper treats of 263 aneurysms of the aorta, with especial reference to their shape, size, position, direction and effect on neighboring structures. The aneurysms of the several customary anatomic subdivisions of the vessel are analyzed separately. The exact shape, size, location and direction of the aneurysms was not always recorded in the protocols; in our tables we have therefore stated the number of cases in which such data were obtainable.

The incidence of sex and color has been stated separately in each of the several groups of aneurysms. Since, however, multiple aneurysms are of frequent occurrence not only in any one of the groups, but particularly in different groups, the total number of aneurysms studied will exceed the number of persons that bore them. Thus, the 263 aortic aneurysms of our present series occurred in 217 persons; of these, 184 were males (117 white, fifty-five black, twelve, color not stated) and thirty-three were females (twenty-two white, six black, five, color not stated). These figures are proportionately similar to those we have previously published for aneurysms in general. They show the preponderance of the male sex and the relatively high incidence in the negro (since in 5,000 admissions to the medical wards of the Philadelphia General Hospital the ratio of whites to negroes was about 15 to 1).

The size of the aneurysms was often recorded in terms of a familiar object (walnut, apple, man's head); for the sake of uniformity, we have transposed such values into approximate metric measurements; the dimensions given in our table apply to the greatest external diameter of the dilatations. The effects on neighboring structures have been considered under the headings: adhesions, compression, erosion and rupture. It will be noted that erosion of any tissue is always accompanied (and preceded) by adhesion to the structure to be eroded, and that commonly the aneurysm has also produced compression. In bones only erosion seems to take place without *grossly* demonstrable compression. The distribution of the aneurysms is as follows: Sixty-two involve the ascending arch; twenty-three, the junction of the ascending and transverse arch; forty-six, the transverse arch; forty-two, the descending arch; nineteen, the entire arch; thirty-one, the thoracic aorta; forty, the

* From the McManes Laboratory of Pathology, University of Pennsylvania, and the Pathological Laboratory, Philadelphia General Hospital.
* Read before the Section on Pathology and Physiology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.
1. Lucke, Baldwin, and Rea, Marion H.: Studies on Aneurysm. I, General Statistical Data on Aneurysm, J. A. M. A. 77: 935 (Sept. 17) 1921.

abdominal aorta. In other words, 191 aneurysms are located in the aortic arch and twenty-one in the thoracic and abdominal aorta. The detailed results of this study are concisely arranged in tabular form for ready reference (Tables 1 to 7); no additional explanatory text seems necessary.

TABLE 1.—*Ascending Arch*

62 ANEURYSMS OCCURRED IN 59 SUBJECTS
(3 subjects had multiple aneurysms of ascending arch)

SEX AND COLOR:
48 males (31 white, 12 black, 5 color not recorded)
11 females (6 white, 3 black, 2 color not recorded)

TYPE OF ANEURYSM (recorded in 61 cases):	
Saccular	56
Fusiform	2
Dissecting	3
SIZE OF ANEURYSM (recorded in 54 cases):	
Small (from 1 to 4 cm.)	19
Medium (from 5 to 9 cm.)	20
Large (from 10 to 14 cm.)	11
Huge (over 15 cm.)	4
LOCATION OF ANEURYSM (recorded in 43 cases):	
Beginning (first 2 cm.)	20
Middle portion	15
Upper portion	7
Entire ascending arch	1
DIRECTION OF ANEURYSM (recorded in 41 cases):	
To the right	12
To the right, anterior	4
To the right, posterior	4
To the right, downward	3
To the right, upward	3
Anterior	7
Anterior, upward	1
Anterior, to the left	1
To the left	2
To the left, posterior	1
To the left, upward	1
Posterior	2

EFFECT ON NEIGHBORING STRUCTURES

	Adhesion	Compression	Erosion	Rupture
Pericardium	.	.	.	11
Superior vena cava	1	1	1	1
Pulmonary artery	1	1	1	1
Left auricle	1	.	.	.
Right auricle	1	1	.	.
Left lung	.	1	.	.
Right lung	4	3	1	1
Left pleura	.	.	.	1
Left bronchus	2	2	2	2
Right bronchus	.	1	.	.
Trachea	1	3	.	.
Ribs or clavicle	7	.	3	.
Sternum	3	.	2	.
Heart (displacement)	2	.	.	.
Externally	.	.	.	1

TABLE 2.—*Junction of Ascending and Transverse Arch*

23 ANEURYSMS OCCURRED IN 23 SUBJECTS

SEX AND COLOR:
19 males (8 white, 10 black, 1 color not recorded)
4 females (4 white)

TYPE OF ANEURYSM	
Saccular	19
Fusiform	4
SIZE OF ANEURYSM (recorded in 21 cases):	
Small (from 1 to 4 cm.)	1
Medium (from 5 to 9 cm.)	5
Large (from 10 to 14 cm.)	11
Huge (over 15 cm.)	4
DIRECTION OF ANEURYSM (recorded in 9 cases):	
To the right, anterior	3
To the right, posterior	1
To the right, upward	3
To the left, anterior	2
To the left, upward	1

EFFECT ON NEIGHBORING STRUCTURES

	Adhesion	Compression	Erosion	Rupture
Auricles	1	.	.	.
Superior vena cava	.	1	.	.
Innominate vein	.	1	.	.
Left vagus nerve	1	1	.	.
Left recurrent laryngeal nerve	.	2	.	.
Right bronchus	1	1	1	1
Left bronchus	1	2	1	.
Trachea	4	2	2	1
Left pleural cavity	.	.	.	1
Right lung	.	1	.	.
Left lung	1	1	.	.
Esophagus	.	1	.	.
Sternum	5	.	1	.
Ribs or clavicle	5	.	5	.
Heart (displacement)	.	1	.	.

TABLE 3.—*Transverse Arch*

46 ANEURYSMS OCCURRED IN 45 SUBJECTS
(One subject had multiple aneurysms of the transverse arch)

SEX AND COLOR:
39 males (20 white, 15 black, 4 color not recorded)
6 females (2 white, 2 black, 2 color not recorded)

TYPE OF ANEURYSM (recorded in 44 cases):	
Saccular	43
Fusiform	1
SIZE OF ANEURYSM (recorded in 41 cases):	
Small (from 1 to 4 cm.)	2
Medium (from 5 to 9 cm.)	10
Large (from 10 to 14 cm.)	24
Huge (over 15 cm.)	5
LOCATION OF ANEURYSM (recorded in 11 cases):	
Apex of transverse arch	1
Beginning	1
Near origin of left subclavian artery	2
Near origin of left carotid artery	1
Near origin of innominate artery	6
DIRECTION OF ANEURYSM (recorded in 23 cases):	
To the right	2
To the right, upward	2
To the right, downward	1
Anterior	4
Anterior, to the right	1
Anterior, to the left	1
Anterior, upward	2
Anterior, downward	1
To the left	1
Posterior	4
Posterior, to the right	1
Posterior, to the left	1
Posterior, upward	1
Posterior, downward	1

EFFECT ON NEIGHBORING STRUCTURES

	Adhesion	Compression	Erosion	Rupture
Pericardium	.	.	.	1
Esophagus	3	1	2	2
Trachea	5	5	2	1
Left subclavian vein	.	3	.	.
Right lung	3	2	.	.
Left lung	3	4	1	2
Chest wall (anterior)	2	.	.	1
Left pleural cavity	.	.	.	2
Right pleural cavity	.	.	.	1
Sternum	8	.	7	.
Ribs or clavicle	5	.	1	.
Vertebrae	1	.	1	.
Pulmonary artery	.	1	.	.
Vessels of neck	.	1	.	.
Left bronchus	.	1	.	.
Heart (displacement)	.	1	.	.

TABLE 4.—*Descending Arch*

42 ANEURYSMS OCCURRED IN 38 SUBJECTS
(4 subjects had multiple aneurysms of the descending arch)

SEX AND COLOR:
35 males (25 white, 6 black, 4 color not recorded)
3 females (2 white, 1 black)

TYPE OF ANEURYSM:	
Saccular	40
Fusiform	2
SIZE OF ANEURYSM (recorded in 39 cases):	
Small (from 1 to 4 cm.)	10
Medium (from 5 to 9 cm.)	10
Large (from 10 to 14 cm.)	13
Huge (over 15 cm.)	6
LOCATION OF ANEURYSM (recorded in 31 cases):	
Beginning	15
Middle portion (opposite 2d and 3d dorsal vertebrae)	4
Lower portion (opposite 4th dorsal vertebrae)	4
Entire descending arch	8
DIRECTION OF ANEURYSM (recorded in 22 cases):	
Posterior	7
Posterior, to the left	6
Posterior, upward	3
Posterior, to the right	1
To the left	3
To the left, upward	1
Anterior	1

EFFECT ON NEIGHBORING STRUCTURES

	Adhesion	Compression	Erosion	Rupture
Esophagus	4	2	3	3
Left lung	4	4	1	1
Left pleural cavity	.	.	.	5
Left bronchus	1	1	1	.
Right pleural cavity	.	.	.	1
Right bronchus	1	.	1	1
Subcutaneously (anterior)	.	.	.	1
Trachea	2	1	.	.
Spinal cord	.	1	.	.
Heart (displacement)	.	1	.	.
Left subclavian vein	1	1	.	.
Vertebrae	16	.	16	.
Ribs	8	.	8	.
Sternum	1	.	1	.

TABLE 5.—*Entire Arch*

19 ANEURYSMS OCCURRED IN 19 SUBJECTS

SEX AND COLOR:
17 males (12 white, 3 black, 2 color not recorded)
2 females (1 white, 1 black)

TYPE OF ANEURYSM:

Saccular	6
Fusiform	13

SIZE OF ANEURYSM (recorded in 18 cases):

Medium (from 5 to 9 cm.)	8
Large (from 10 to 14 cm.)	9
Huge (over 15 cm.)	1

DIRECTION OF ANEURYSM (recorded in 8 cases):

Posterior	1
Posterior, upward	4
Anterior	1
Anterior, to the left	1
Anterior, to the right	1

EFFECT ON NEIGHBORING STRUCTURES

	Adhesion	Compression	Erosion	Rupture
Trachea	1	.	.	.
Left lung	1	1	.	.
Left bronchus	.	1	.	.
Sternum	3	.	3	.
Vertebrae	3	.	3	.
Ribs	3	.	3	.

TABLE 6.—*Thoracic Aorta*

31 ANEURYSMS OCCURRED IN 27 SUBJECTS
(3 subjects had multiple ansurysms of the thoracic aorta)

SEX AND COLOR:
25 males (16 white, 8 black, 1 color not recorded)
2 females (2 white)

TYPE OF ANEURYSM:

Saccular	26
Fusiform	4
Dissecting	1

SIZE OF ANEURYSM (recorded in 27 cases):

Small (from 1 to 4 cm.)	7
Medium (from 5 to 9 cm.)	8
Large (from 10 to 14 cm.)	10
Huge (over 15 cm.)	2

LOCATION OF ANEURYSM (recorded in 25 cases):

Beginning (level of 4th and 5th dorsal vertebrae)	7
Middle portion (level of 6th to 8th dorsal vertebrae)	3
Lower portion (level of 9th and 10th dorsal vertebrae)	5
Entire thoracic aorta (level of 4th to 10th dorsal vertebrae)	10

DIRECTION OF ANEURYSM (recorded in 17 cases):

Posterior	4
Posterior, to the right	2
Posterior, to the left	3
To the left	6
To the right	2

EFFECT ON NEIGHBORING STRUCTURES

	Adhesion	Compression	Erosion	Rupture
Diaphragm	2	.	.	.
Vertebrae	17	.	16	.
Ribs	7	.	7	.
Left pleura	.	.	.	6
Left lung	4	4	.	1
Anterior chest wall	1	.	.	.
Abdominal cavity	.	.	.	1
Left bronchus and trachea	.	2	.	.
Heart (displacement)	.	3	.	.
Esophagus	.	1	.	.

TABLE 7.—*Abdominal Aorta*

40 ANEURYSMS OCCURRED IN 38 SUBJECTS
(2 subjects had multiple aneurysms of the abdominal aorta)

SEX AND COLOR:
32 males (22 white, 9 black, 1 color not recorded)
6 females (5 white, 1 color not recorded)

TYPE OF ANEURYSM (recorded in 34 cases):

Saccular	30
Fusiform	3
Dissecting	1

SIZE OF ANEURYSM (recorded in 37 cases):

Small (from 1 to 4 cm.)	9
Medium (from 5 to 9 cm.)	11
Large (from 10 to 14 cm.)	9
Huge (above 15 cm.)	8

LOCATION OF ANEURYSM (recorded in 37 cases):

Just below diaphragm	11
At or near celiac axis	11
Lower portion	13
Entire abdominal aorta	4

DIRECTION OF ANEURYSM (recorded in 21 cases):

Posterior	2
Posterior, to the left	5
Posterior, upwards	2
Anterior	6
Anterior, lateral	2
Anterior, to the right	1
To the left	3

EFFECT ON NEIGHBORING STRUCTURES

	Adhesion	Compression	Erosion	Rupture
Diaphragm	6	.	6	.
Vertebrae	20	.	17	.
Ribs	1	.	.	.
Retroperitoneal tissues	5	.	.	5
Peritoneal cavity	.	.	.	5
Left pleural cavity	.	.	.	2
Right pleural cavity	.	.	.	3
Left adrenal gland	2	.	1	.
Stomach, pancreas, intestines	.	.	.	.
Kidney, liver—each	1	1	.	.
Heart (displacement)	.	1	.	.
Left lung	.	.	.	1

POINTS OF ELECTION FOR AORTIC ANEURYSMS

It is generally agreed that aneurysms arise because of two factors; namely, disease of the vessel wall and the pressure of the blood against this weakened focus. There are certain points of election where aneurysms are particularly apt to occur. This has been especially emphasized by von Rindfleisch,[2] who asserted that aneurysms were located chiefly at certain levels of a spiral line which begins on the ventral aspect of the bulbus aortae, gradually ascends and curves to the right, and traverses the convexity of the arch just to the right of origin of the innominate artery; from here the line descends in a long sweep on the posterior (and mesial) aspect of the thoracic and abdominal aorta. This line does not correspond to areas where the aorta meets less external resistance from neighboring structures, since it is directed, for a considerable part, against the nonyielding vertebral column. Rindfleisch maintained that the spiral corresponds to the line of greatest impact of the whirling aortic blood stream. It is not clear from his writing whether he merely assumed this to be a fact or had experimental evidence for his belief. We shall take up the points of election seriatim, first giving for each group the location and direction according to Rindfleisch and then contrasting our findings with his.

1. Aneurysms at the first point of election (of Rindfleisch's line of impact) arise from the ventral aspect of the aortic bulb and point toward the pulmonary artery; they rupture into the pericardium. In our series, twenty of the forty-three cases had this location, and eleven of the eighteen cases in which rupture occurred perforated into the pericardium.

2. The second point of election is about the middle of the ventral aspect of the ascending arch; the aneurysms point toward the sternum, which is eroded at the manubriogladiolar junction; rupture takes place externally. In our series, fifteen of the forty-three cases were located at this level; they pointed chiefly to the right and anteriorly, but in the total series of sixty-two aneurysms the sternum was eroded only twice and external rupture took place only once. Indeed, we have found external rupture in only two of seventy-six cases of ruptured aneurysm.

3. The third point of election corresponds to about the junction of the ascending and transverse arch, the aneurysm pointing to the right, eroding into the right lung. In our series the chief extension was to the right, and the respiratory tubes and the lungs were most often involved by the extending aneurysm.

4. The fourth point of election lies on the dorsal aspect of the transverse arch, between the innominate and the left carotid arteries; extension of the sac occurs to the right and upward toward the trachea. The

2. Von Rindfleisch, E.: Lehrbuch der pathologischen Gewerbelehre, Ed. 6, Leipzig, 1886, p. 227 et seq.

aneurysm rarely exceeds in size a hen's egg and ruptures into the trachea. We find that, in twenty-three cases, eleven pointed anteriorly, eight posteriorly, five to the right, and one to the left. Of forty-one cases, thirty-four attained a size ranging between 5 and 14 cm. The sternum and the ribs were most often eroded, and rupture into the trachea occurred in only one case.

5. Aneurysms at the fifth point are located on the dorsal aspect of the descending arch; they extend between the left subclavian and the aortic isthmus to the left of the vertebral column; they are often cylindric. We find the majority in our series to be saccular and directed posteriorly to the left.

6. The remaining aneurysms of the aorta all point more or less posteriorly toward the vertebral column, and since they erode the bones but slowly, they usually expand laterally, with eventual fatal hemorrhage into the pleural or peritoneal cavities. The aneurysms lying just above the diaphragm may protrude into the muscular parts of the thoracic wall and attain huge size, without perforation. The majority of the aneurysms of the thoracic and abdominal aorta in our series extended posteriorly; we did not have any examples of extension into the thoracic muscles.

We find, then, that the aneurysms of our series were frequently located along the line of impact of von Rindfleisch, but in every group there were many exceptions.

SUMMARY

The distribution of 263 aneurysms of the aorta, studied postmortem at the Philadelphia General Hospital and the Hospital of the University of Pennsylvania, was as follows: Sixty-two involved the ascending arch; twenty-three, the junction of the ascending and transverse arch; forty-six, the transverse; forty-two, the descending, and nineteen, the entire arch; thirty-one, the thoracic, and forty, the abdominal aorta. The following generalizations have reference only to the behavior of the majority of the aneurysms, and indicate the conditions most frequently encountered; for details, reference must be made to the data presented in the tables.

1. Aneurysms of the ascending arch are of relatively small size; they arise most frequently in the lower portion of the vessel, extending to the right and anteriorly. They become adherent to, compress or erode the neighboring great vessels, the respiratory structures, the ribs, right clavicle and the sternum. Rupture most commonly occurs into the pericardium or the respiratory organs.

2. A considerable number of aneurysms are located at the junction of the ascending and transverse arch. They attain considerable size, extend commonly to the right, and affect especially the neighboring vessels, nerves and respiratory organs, and rupture into the latter.

3. In the transverse arch, aneurysms often attain large size; they arise near the orifices of the great vessels, and extend with equal frequency anteriorly or posteriorly. They commonly affect the sternum and the ribs, compress the trachea and esophagus, and rupture into these structures or into the pleural cavities. External rupture is uncommon.

4. The aneurysms of the descending arch are located most commonly near its junction with the transverse arch. Their extension is mainly posterior and to the left. They frequently involve the esophagus and the left respiratory organs; many cause erosions of the vertebrae and ribs. Rupture takes place especially into the left respiratory organs and the esophagus.

5. The entire arch is most often the seat of large saccular or fusiform dilatations, which extend both anteriorly and posteriorly. The sternum, vertebrae and ribs are the structures eroded.

6. In the thoracic aorta the aneurysms are commonly large and extend posteriorly and to the left, eroding the vertebrae and ribs, and rupture into the left pleura and the lung. Rupture into the abdominal cavity also occurs.

7. In the abdominal aorta, the aneurysms may attain very large size. They are chiefly located just below the diaphragm, at or near the celiac axis, or above the bifurcation. They extend with equal frequency posteriorly or anteriorly, and commonly erode the vertebrae. Rupture takes place with equal frequency into the abdominal cavity, the pleural cavities or the retroperitoneal tissues.

8. The location of the aneurysms in our series corresponds to the so-called points of election along the spiral line of impact described by Rindfleisch in only about one-half the cases; in particular, many aneurysms fail to conform in their direction to Rindfleisch's rules.

ABSTRACT OF DISCUSSION

Dr. F. D. Weidman, Philadelphia: The really valuable part of statistical studies like Dr. Rea's consists in the final analysis and deductions which come after the various data have been distributed. In these final analyzings I found that we can visualize things, and by a very simple expedient; i. e., by staining and marking variously shaped sticks so that each shape and mark will represent some disease feature. Thus, in Dr. Rea's aneurysm work, perhaps a curved stick might represent an "ascending" aneurysm, an angulated stick a transverse aneurysm, and then a red mark on such sticks might represent rupture of an aneurysm, and so on. Then when it comes to analyzing the cases afterward we can gather together all the sticks of one shape or all the sticks that happen to have a red mark or happen to have any symbol on them which has been allotted to a particular feature of aneurysm, and thus analyze the cases by a direct visual method instead of having to keep a great many pros and cons of the subject in one's mind at the same time.

Evolution of Medical Department.—While from the beginning of our history as a nation the medical department of the U. S. Army has great traditions in the line of professional attainments, of devoted service to sick and wounded, and of gallantry in action, . . . good medical department organization was of slow growth and did not flower till fertilized by experience in the Civil War. The story of the medical department of our army in our first war, the Revolution, adds nothing to that of its development to the stage when we entered the World War. Possibly one exception might be made to this statement, for the lack of medical organization in the Continental armies demonstrated that no matter how skilful the doctors, . . . their services were largely wasted with bad organization. From the British we had inherited an organization which distinguished sharply between hospital surgeons and troop surgeons. Baron von Steuben, who wrote our first army regulation, in 1780, maintained the distinction between surgeon, physician and apothecary. These lines of cleavage operated seriously against a united medical department. But the jealousies of the different colonies were even more powerful in preventing a centralized administration, with all medical officers merely parts of a whole, working for the common good. . . .—The Medical Department of the United States Army in the World War, **1**, War Department, 1923.

TECHNIC FOR QUANTITATIVE ESTIMATION OF SUGAR IN VERY SMALL AMOUNTS OF BLOOD*

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A number of methods for the quantitative determination of sugar in small amounts of blood have been described.[1] Of these the method of Folin and Wu[2] is probably the best, because of its simplicity and accuracy. The amount of blood used, though small, is such that it cannot readily be obtained except by venipuncture. This is often a matter of considerable difficulty with infants. When consecutive determinations are to be made within a short time, it is often impossible. For this reason, blood sugar determinations have heretofore been made in this laboratory by the Bang[3] method. This method has the single advantage of requiring only about 100 mg. of blood for a single determination. The technical difficulties of the sugar determination itself are, however, so great that we have recently been compelled to devise a more simple procedure. We have therefore so modified the technic of Folin and Wu that only from 0.05 to 0.1 c.c. of blood is required for a single determination (a quantity that can easily be obtained from a finger prick). In going over the literature we have found descriptions of several modifications of the Folin and Wu method.[4] None of these, however, require less than 300 mg. of blood for a single determination.

TABLE 1.—*Comparison of Results Obtained by Original Folin and Wu Method and by Authors' Technic*

BLOOD SUGAR IN MG. PER 100 C.C. OF SERUM (ANTIPNEUMOCOCCUS)	
Folin and Wu	Authors' Technic
54	53.3
61.4	61.8
58.1	56.5
56.2	57
PIG'S SERUM	
128	125
123	122
111	119
128	128

DESCRIPTION OF THE METHOD

The finger is thoroughly cleansed by means of alcohol and ether, and made to bleed by pricking with a lancet or myringotomy knife. One-twentieth or one-tenth cubic centimeter of blood is drawn into a pipet graduated at 0.05 and 0.1 c.c. When the sugar content of the blood is expected to exceed 100 mg. per hundred cubic centimeters of blood, only 0.05 c.c. of blood is required. The blood is transferred from the pipet to a small tube graduated at 2 c.c. and containing 1.5 c.c. of distilled water, in order to produce complete hemolysis. The water is drawn into the pipet several times to make sure of getting all the blood. To precipitate the proteins, 0.1 c.c. of 10 per cent. solution of sodium tungstate, followed by 0.1 c.c. of two-thirds normal sulphuric acid solution is added. The tube is rolled between the palms of the hands until the mixture changes to a dark brown. The volume is made up to 2 c.c. with distilled water, and the tube is rolled again. It is then allowed to stand for five minutes and is centrifugated for two or three minutes. The supernatant fluid is pipetted off and transferred to a 10 cubic centimeter glass stoppered graduate. If 0.05 c.c. of blood is used, 1.5 c.c. of tungstic acid supernatant fluid is obtained, and 1.4 c.c. of fluid when 0.1 c.c. of blood is used. The fluid is transferred to a Folin-Wu sugar tube graduated at 6 c.c. as well as 12.5 and 25 c.c. To two similar tubes is added 1 c.c. of the standard sugar solution containing 0.1 mg. of sugar. With low blood sugars, an additional standard containing 0.5 c.c. of the standard solution is used.[5] Two cubic centimeters of the alkaline copper solution is added to each tube. The tubes are transferred to a boiling water bath and heated for six minutes. They are then removed from the boiling water bath to a cold water bath and allowed to remain for three minutes. Two cubic centimeters of the molybdate solution is added to each tube. A rubber stopper is inserted, and the contents are mixed thoroughly and then compared in the colorimeter. The standard is first set at 15 and read against itself. One standard is then replaced by the unknown, and several readings are taken in the usual manner.

TABLE 2.—*Sugar Concentration in Blood of Patients Suffering from Various Diseases*

Patient	Diagnosis	Blood Sugar in Mg. per 100 C.c. of Blood
1	Acute nephritis	115
2	Furunculosis	107
3	Tuberculous meningitis	111
4	Cerebrospinal syphilis	100
5	Pertussis	120
6	Tetany	102

CALCULATION

The calculation of the amount of sugar in the sample is carried out as follows: If the amount of sugar in 1.4 c.c. of supernatant fluid representing 0.07 c.c. of blood gives a reading of 18 against a 0.1 mg. standard set at 15, the proportion is:

$$15 : 18 :: x : 0.1 = 0.0833 \text{ mg. of sugar in 0.07 c.c. of blood}$$

The complete calculation is as follows:

$$\frac{15 \times 0.1 \times 1000}{18 \times 0.7} = 119 \text{ mg. of sugar per 100 c.c. of blood.}$$

The reagents are prepared in the same way as in the original method of Folin and Wu.

TABLE 3.—*Diabetes Mellitus (Blood Sugar of Patients Treated with Insulin)*

No.	Diagnosis	Blood Sugar in Mg. per 100 C.c. of Blood	Units of Insulin	Time	
7	Diabetes mellitus	272*			
	Diabetes mellitus	210	20	4:30 p. m.	2/27/23
	Diabetes mellitus	163	50	10:30 a. m.	2/28/23
	Diabetes mellitus	161	..	4:30 p. m.	2/28/23
	Diabetes mellitus	102	40		3/ 3/23
	Diabetes mellitus	82	165		3/16/23
8	Diabetes mellitus	153	...		
	Diabetes mellitus	109	52		
9	Diabetes mellitus	300	..		
	Diabetes mellitus	144	254		

* Folin and Wu.

RESULTS

Table 1 gives the results of a series of comparative determinations on antipneumococcus serum by the original Folin and Wu method, and by our modification using 0.1 c.c. of serum.

Table 2 gives the results of sugar determinations on the blood of a small series of nondiabetic patients.

Table 3 illustrates the value of the method in following the effects of insulin on the blood sugar.

The results obtained by this method agree well with those obtained when larger amounts of blood are used.

* From the Department of Pediatrics, Johns Hopkins University.

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2. Folin, O., and Wu, H.: J. Biol. Chem. **38**: 106, 1919; **41**: 367 (March) 1920.

3. Bang, I.: Der Blutzucker, 1913; Ueber der Micromethode der Blutzuckerbestimmung, Biochem. Ztschr. **47**, 1913.

4. Wallis, R. L., M., and Gallagher, C. D.: Lancet **2**: 784 (Oct. 16) 1920. Baumann, E. J., and Isaacson, R. L.: J. Lab. & Clin. Med. **7**: 357 (March) 1922. Pollock, H. O., and McElroy, W. S.: Am. J. M. Sc. **163**: 571 (April) 1922.

5. Additional standards containing 0.75 and 1.25 c.c. of standard sugar solution may be prepared to approximate the unknown.

The special pipets and blood sugar tubes may be obtained of Emil Greiner, 115 Fulton Street, New York.

A COMPARATIVE STUDY OF THE CRYPT CONTENT OF TONSILS OF MAN, PIG AND COW

WITH ESPECIAL REFERENCE TO THE ACTINOMYCES-LIKE GRANULES *

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In the crypts of the human tonsil, characteristic bodies, commonly called actinomyces-like granules, often occur. They are found, roughly, in about 30 per cent. of extirpated tonsils, and they probably appear at times in the crypts of all tonsils. They are small, nonadherent, grayish yellow, somewhat brittle, and foul smelling, and are often multiple and bilateral. On section they reveal a raylike arrangement of filaments, with peculiar brushlike structures at the margins. Smears indicate that they are made up of several varieties of organisms, the most conspicuous of which are coarse, unbranched filaments, coccal forms, fusiform organisms and many large spirochetes. Since descriptions of these bodies have already been published,[1] further details need not be given here.

These bodies, because of their raylike character, have been mistaken for true *Actinomyces*. Their structure, however, is very different from the latter, and they are easily differentiated from it. In an examination of granules from many hundred human tonsils, we have not as yet encountered a single instance of *Actinomyces* occurring in the crypts. In spite of a general impression that actinomycosis of the tonsil is not uncommon, a search of the literature reveals few cases of true primary actinomycosis of this organ. It is extremely rare.[2]

In relation to this subject are certain data in the literature, reported, in large part, years ago, concerning the occurrence of *Actinomyces* in the tonsils of lower animals, notably the hog.[3] In view of these observations it was thought important to investigate further the nature of such bodies in the hog, especially in the light of the recent data obtained with human tonsils. To do this, an adequate supply of material was necessary; this was made available through the courtesy of Dr. Day, U. S. Inspector at the Union Stock Yards, Chicago. Five hundred tonsils were obtained and submitted to examinations. In this work I had the cooperation of Dr. Alice K. Hall.

A few statements should be made with reference to the anatomy of the hog's tonsils. These organs are large, flat and rather smooth, measuring approximately 3 by 4 cm., and in depth from 0.5 to 0.75 cm. The crypts are numerous, numbering 100 or more for each tonsil. The openings are small, and the crypt extends downward nearly to the base. On microscopic examination the crypts are seen to be lined with an epithelium, as a rule thoroughly infiltrated with lymphoid cells quite like the human tonsil. The surface of the organ is covered with a layer of dense, squamous epithelium, which may dip down into the mouths of the crypts for a little distance. The follicles are numerous, located close beneath the epithelium, and have a conspicuous germinal center.

In the gross examination of the hog's tonsils it was common to see plant fibers projecting from the crypt lumen. At times, several might be found in one tonsil. They consisted usually of small pieces of straw or grass. On these fibers, found projecting or embedded in the crypts, *Actinomyces* granules were very commonly seen. Often they appeared separate from the fiber, but usually were either in close apposition to it or growing on it along the margin. At times the filaments extended well into the fiber, and the growth was observed along the tubules of the plant structure as seen in the accompanying illustration. The granules appeared in every way typical of *Actinomyces*. Clubs were in evidence at the periphery, and gram-positive, branching filaments appeared in the centers. In hematoxylin and eosin preparations, the clubs stained red and the central filaments blue.

In the 500 tonsils examined, the percentage of embedded fibers, the percentage of fibers associated with *Actinomyces*, and the number of tonsils containing caseous plugs were noted. Several of the tonsils containing the organisms were sectioned and studied histologically in preparations stained with dilute carbolfuchsin, hematoxylin and eosin, and by an acid-fast stain. Cultures were made of buried and surface vegetable fibers and also of suspicious crypt material.

Seven per cent. of the tonsils examined contained embedded straws, and 4.7 per cent. contained *Actinomyces*. The latter occurred far more frequently along or attached to those fibers which were buried deep in the substance of the tonsil. More than 50 per cent. of the tonsils contained from one to several caseous or purulent plugs similar to those commonly appearing in human tonsils. The latter do not contain *Actinomyces* organisms. It should be stated that the percentage of tonsils containing straws and *Actinomyces* is no doubt considerably higher than that given above. In a gross examination one might easily overlook deeply embedded fibers or occasional granules in the crypt. No doubt, too, the fibers are continually being expressed, so that probably every tonsil at some time is infected with *Actinomyces*.

Cultures were taken from deeply embedded and from surface straws; also of caseous plugs and surface smears. The straws were washed several times in sterile physiologic sodium chlorid solution, in order to remove as many contaminating organisms as possible. Three per cent. dextrose agar was used, to which 2 c.c. of human blood serum was added to each 20 c.c. tube of medium. The agar was melted and cooled, the material for inoculation being placed in the center of a large tube just before the agar solidified. The tubes were sealed with paraffin, thus furnishing partial anaerobic conditions, and were allowed to remain at room temperature. After two weeks, yellowish white nodules, about 1 mm. in diameter, were seen along the straws, of which cultures were taken. No growth was noted in the tubes inoculated with material from caseous plugs or surface smears. After one month the tubes were broken, and the straws removed and examined. They were found to be covered with *Actinomyces*, the fungus appearing in large numbers even on those fibers on which it was not observed before cul-

* From the Department of Pathology and Bacteriology, University of Illinois College of Medicine.

* Read before the Section on Pathology and Physiology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

1. Davis, D. J.: J. Infect. Dis. **14**: 144, 1914. Davis, D. J., and Pilot, Isadore: Studies of Bacillus Fusiformis and Vincent's Spirochete, J. A. M. A. **79**: 944 (Sept. 16) 1922.

2. Castellani, A.; Douglas, M., and Thompson, T.: J. Trop. Med. **26**: 19 (Jan. 15) 1923.

3. Schlegel, in Kolle and Wassermann's Handbuch, Ed. 2, 1913, p. 346.

tures were made. Subcultures were made, the same growth appearing in from ten to fourteen days. The morphology and staining characteristics of the cultivated organisms were similar to those observed on the fibers originally.

Of interest is the reaction that appeared about the infected fibers in the crypts. Many polymorphonuclear leukocytes were seen around the fibers within the crypts, which on pressure were forced out with the fibers as a small drop of purulent exudate. In sections of the tonsil, however, the leukocytes are seen outside the epithelium and do not invade the tissue proper. No example of invasion of the tissue was seen in any specimen, and no noteworthy alteration appeared in the crypt epithelium. In this connection it may be stated that primary actinomycosis of the hog's tonsil is rare, in spite of the very common localization of the organisms here (Kitt).

In view of the fact that the human crypts so commonly harbor large numbers of fusospirochetes [1] both in granules and outside them, a search was also made for them in the hog's tonsil in ordinary smear preparations stained heavily with carbolfuchsin. The smears were made both by inserting into several crypts a wire loop, thus obtaining the crypt exudate, and by compressing the tonsil and thus forcing to the surface the grayish crypt contents. Careful inspection of the slides revealed the following: In smears from fifty tonsils, definite spirochetes were seen in twenty, or 40 per cent. They were not numerous, as a rule, though in a few specimens large numbers were encountered. In morphology they are rather coarse organisms, with several spirals, and stain readily with carbolfuchsin. They appear somewhat smaller than those seen in human tonsils, though in general they have the same morphology. Along with the spirochetes are fusiform bacilli in greater or less numbers. Usually they are not very conspicuous, being decidedly less numerous than in human tonsils. A small number of bacteria, usually gram-positive diplococci and gram-negative bacilli, are seen. On the whole, the total number of bacteria is less than appears in smears from human tonsils. In no instance were granules similar to the human type seen in the crypts of the hog's tonsil.

Typical Actinomyces from the crypt of a hog's tonsil; some are attached to the plant fiber; slightly reduced from a photomicrograph with a magnification of 180 diameters.

The streptococci are of two types, the hemolytic and the nonhemolytic. In about 50 per cent., hemolytic cocci of the beta type are found at times in practically pure cultures on aerobic blood plates, in this respect, therefore, being similar to the human cocci. Nonhemolytic streptococci of the viridans type, and colon bacilli are also commonly found in cultures made from the crypts.

In the cow the conditions are somewhat different. The cow's tonsil is a somewhat spherical organ from 3 to 5 cm. across, with a circular tube a centimeter or more in diameter, into which the numerous and rather course crypts open. A very large amount of mucus is secreted by the adjacent epithelial surfaces.

Eighty-six tonsils of cows slaughtered at the Union Stock Yards were obtained fresh and examined for granules and by smear preparations. Grossly, the tonsils were cut by numerous transverse incisions, and the crypts inspected. In only three of the eighty-six were pieces of vegetable fiber found, and they showed no evidence of *Actinomyces* growing on them. These consisted of pieces of straw or hay. No definite granules, either actinomycetic or of the human type, were found. Small grayish cheesy or purulent plugs were seen in practically every tonsil, often in large numbers. At times, small encapsulated abscesses appeared with a yellow purulent content. In all these tonsils, microscopic examination of these plugs revealed no evidence of *Actinomyces*.

Smear preparations were made from the crypts of the forty-eight cows' tonsils, some from the grayish plugs, others from the crypts and epithelial surface. They were stained with carbolfuchsin and also by Gram's stain. In no instance were spirochetes or typical fusiform bacilli found. A few cocci, chiefly diplococci and ovoid bacilli, were seen. The bacterial flora in the cow's tonsils is not rich.

Klarenbeek [4] was not able to find spirochetes in the mouth and about the teeth of the cow.

Aerobic blood agar plates were made of the depths of the cow's tonsils. Hemolytic streptococci of the beta type were found in 24 per cent. of seventeen tonsils examined. In two they were in nearly pure culture. Nonhemolyzing streptococci and *Streptococcus viridans* were practically constant, often in large numbers.

SUMMARY

In man, the granules found in the crypts are for the most part composed of radiate, nonbranching, mycelial structures, fusiform bacilli, spirochetes and cocci. Characteristic brushlike terminals appear in the margin. True *Actinomyces* does not occur. Food particles and lime may be found in these granules. They are an important habitat for spirochetes, fusiform bacilli and streptococci.

In the hog, granules are very common, especially attached and adjacent to straws, and plant fibers are found frequently in the tonsil crypts. These are true *Actinomyces*, being composed of radiate, gram-positive, branching filaments with definite clubs. Here is an important normal habitat for this fungus. Spirochetes and fusiform bacilli may be found, but not constantly. Granules of the human type are not found in the hog.

4. Klarenbeek: Arch. f. Protistenkunde 49: 211, 1923.

In the cow's tonsil, neither the human nor the hog type of granule is found. Here occur chiefly soft, fatty, yellow masses and occasionally plant fibers. Spirochetes are not found.

ABSTRACT OF DISCUSSION

Dr. Henry Albert, Reno, Nev.: I should like to ask Dr. Davis for more information in regard to the pathogenicity of his *Actinomyces "suis."* He stated that there is but little evidence of pathologic change in the immediate neighborhood of the organism. Nevertheless, it seems to me that the presence of as large a number of the type of cells which he has described as occurring immediately around the organisms in the crypts is evidence of irritation other than would be caused by foreign bodies. I should like to ask whether he has had an opportunity of performing experiments and seeing whether there is any pathogenicity; also whether, by means of cultures or other methods, he has determined the relationship between this organism and *Actinomyces bovis.*

Dr. Oliver P. Terry, Lafayette, Ind.: Many of these slides look very much like smears from Vincent's angina, and I should like to inquire what the relationship is between these organisms and Vincent's angina.

Dr. David J. Davis, Chicago. These organisms have been cultivated. One may pick out these infected straws from the tonsils of the hogs, and these organisms will grow in sugar agar under anaerobic conditions. They appear to conform to the ordinary *Actinomyces bovis.* I have injected guinea-pigs and also rabbits with these organisms, and so far have obtained no results. That is not very surprising, however, because we know the difficulty of obtaining experimental actinomycosis when using strains isolated from human or bovine cases. With reference to the question concerning Vincent's angina, these fusospirochetes seen in tonsils apparently are quite the same as the organisms that cause Vincent's angina, excepting that Vincent's angina is caused presumably by a more pathogenic strain.

MENTAL RETARDATION AND DUCTLESS GLAND DISEASE

A REPORT OF TWELVE CASES *

HANS LISSER, M.D.
AND
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SAN FRANCISCO

Mental retardation is found in children of most diverse types, showing varying physical stigmas. Hereditary factors can be traced not infrequently. Various organic conditions and toxic and infectious states at times are wholly or partly responsible for the mental retardation. Nutritional disorders may have some causative relation at times. Probably a multitude of conditions, prenatal and postnatal, cast shadows across the paths of development that lead to mental inferiority. Certain it is that many of these children will disclose outspoken endocrine disturbances. The relationship between the mental retardation, psychic abnormality and ductless gland disease may be accidental, coincidental. Pathology of mind and psyche, and dystrophies of glandular origin are both sufficiently common, so that their presence together in the same person need not occasion surprise. It would, indeed, be premature and bold to assume a hormone etiology in all such instances. It may be pointed out, however, that we have become rather accustomed to think of the imbecility in cretinism as closely dependent on thyroid deficiency. Indeed, we have been fortified in such an attitude by the extraordinary mental advancement produced by thyroid feeding in such patients. The results are often magical, but not invariable. Comparable changes in the mental sphere have not often followed therapy with other glandular products. It would be unwise to deduce from such failures that no relationship exists. Are not the failures due rather to the lack of therapeutic potency in the products at present available? Diabetes was not cured by pancreatic extracts until insulin was achieved. The time may arrive when an "insulin" of the pituitary gland will be discovered, and then comparable results in the treatment of pituitary dystrophies will be forthcoming. Until then we had best be conservative about assuming pituitary responsibility for some instances of mental retardation, and likewise conservative about condemning such a relationship. The proof is not yet.

Meantime, it may be interesting and not entirely futile to record some cases of mental retardation in which outspoken ductless gland disorders could also be detected.

Fig. 1 (Case 1).—Appearance of patient, aged 15 years; mental age, 11 years; preadolescent hyperpituitarism, with large genitalia for age.

PREADOLESCENT HYPERPITUITARISM (GIGANTISM)

Case 1.—An overgrown boy, aged 15 years (Fig. 1), referred in July, 1921, had become increasingly indifferent to his surroundings after an attack of mumps four years before, would not associate with boys and girls in the neighborhood, and was unsocial, shut-in, and dull in school. No one in the family was peculiar in stature or weight. The mother's brother was peculiar and unsocial; otherwise there was no history of mental disorder in the family as far as she knew. Three other children were well and totally unlike this lad in disposition. The patient seemed to change, following the mumps. He grew very rapidly between 10 and 13 years of age. He did not have a large appetite. He would sleep from ten to twelve hours if the opportunity offered.

By the Binet scale, the mental age of the patient was 11 years, a retardation of four years—indicating a borderline defective. He was self-conscious, irritable, depressed, very reticent, hypersensitive, and suspicious. He weighed 135 pounds (61 kg.); he was tall for his age, 67 inches (170 cm.); span 68½ inches (174 cm.); upper measurement, 32 inches (76 cm.); lower measurement, 35 inches (84 cm.); in other words, long arms and legs, big hands and feet. His voice had changed to the adult pitch; he had just begun shaving; he had the axillary and pubic hair of an adult. The genitalia were decidedly large for his age. His general posture was poor; he slumped over. The systolic blood pressure was 135; diastolic, 65. The urine was normal. A roentgenogram of the skull showed the sella rather large, within normal limits. The basal metabolism was 23.8 per cent. plus

The conclusion was: mental retardation; abnormal personality; gigantism.

Case 2.—A lad, aged 14 years, applied in July, 1920, because of increasing prominence or deformity of the lower sternum.

* From the Ductless Gland Clinic, Department of Medicine, University of California Medical School.

* Read before the Section on Nervous and Mental Diseases at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

The members of the mother's side of the family were short. The father was huge, tall, and weighed between 285 (129 kg.) and 300 pounds (136 kg.). The father's brother was described as "a small sized elephant." The father's mother weighed over 300 pounds. The boy had had measles, whooping cough, mumps and chickenpox. A mastoid operation was performed when he was 4 years old and drained for about a year. The tonsils and adenoids were removed at the age of 6. He had grown rapidly the past year.

The mental age was 11 years, three years' retardation; he ranked as a backward boy of the "dullard" type. His memory and reasoning were rather inferior: the slow plodding type of mind. He lacked alertness and initiative, was timid and apologetic. He was shy, and did not play with other children.

He was overgrown, being 5 feet 6½ inches (169 cm.) high, with poor posture, marked lordosis, large hands and feet of the acromegalic type, and marked bulging of the sternum from the fourth rib to the ensiform cartilage. He wore a 9½ shoe. The genitalia were large for his age. The systolic blood pressure was 125; the diastolic, 80. The urine was normal. Fluoroscopic examination of the chest detected nothing in the chest to account for the deformity of the sternum. A roentgenogram of the skull was negative.

The conclusion was: mental retardation, abnormal personality, gigantism and acromegaly.

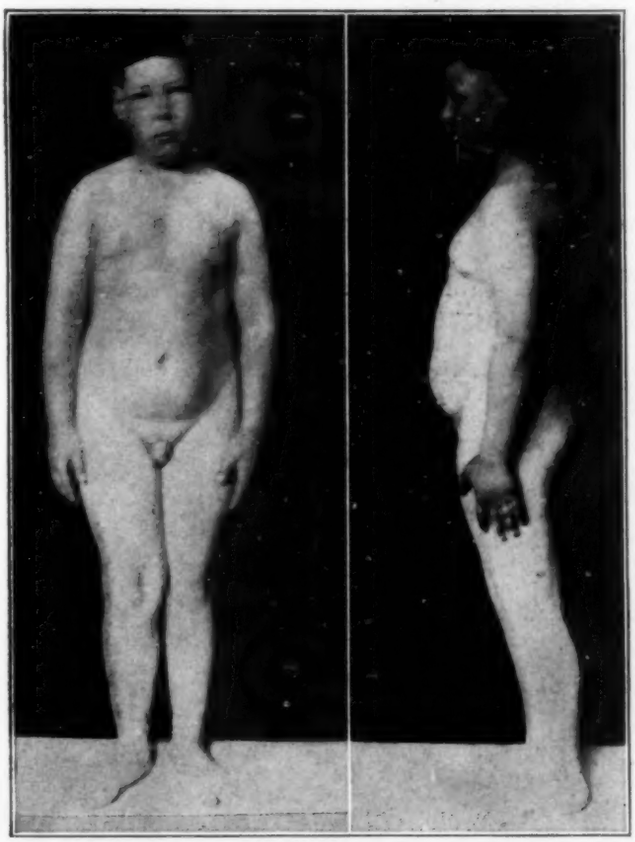

Fig. 2 (Case 6).—Appearance of patient, aged 11 years; intelligence quotient, 56; narrow palpebral apertures; puffy upper lids; feminine type of obesity, with prominent breasts, prominent mons veneris and infantile genitalia; protuberant abdomen and prominent breasts.

PREADOLESCENT HYPOPITUITARISM (ADIPOSOGENITAL DYSTROPHY)

CASE 3.—A boy, aged 10 years, had not increased in height for three years. His mother, who was mentally aged 8 years, died of sepsis at the age of 37; there was a history of obesity on the mother's side. He was full term, with normal delivery and had been breast fed for one year; he had his first tooth at 7 months; he sat up before 1 year; he walked and talked at 1 year; he had measles at 5, mumps at 8, and varicella at 9. The patient was the second of four children, the oldest being a girl, who was bright mentally and not obese. The boy was bright up to 7 years of age; since then he had progressively deteriorated; he had steadily grown fatter, but not in height for the last three years. He had been in the first grade in school for three terms without advancement.

He was stupid, but good natured and affectionate. His height was 4 feet, ¼ inch (122.6 cm.); weight, 101 pounds (46 kg.); the skin was rough and dry, with some tendency to

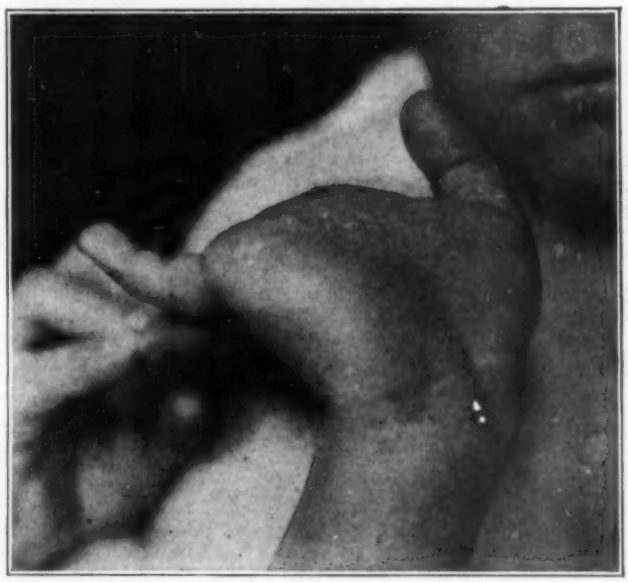

Fig. 3 (Case 6).—Hyperextensibility of joints; hypotonicity of muscles.

scale; the mammary glands were prominent; the abdomen, protuberant and very fat, with a prominent mons veneris; the genitalia were infantile, the testes rudimentary; there were choreiform movements of both arms, more marked by motion and when he attempted to grasp anything. Rectal examination showed a possibly tiny, rudimentary prostate; but it was almost impossible to be sure by palpation whether a prostate was present or not.

The mental age was 4 years—six years' retardation. Natural ability was seriously lacking; the boy could not count four objects, or repeat six syllables. His information was that of a small child. The blood count was normal; the Pirquet test and Wassermann reaction were negative; the urine was normal. The blood sugar curve was: 0.102, 0.119, 0.115, 0.099. The urine sugar curve was normal. Fluoroscopic examination of the chest gave no evidence of a thymus gland. A roentgenogram of the skull disclosed a small sella, with the sutures permanently closed.

The conclusions were: adiposogenital dystrophy, with marked mental retardation.

CASE 4.—A fat boy who was one of twins, full term, first talked at the age of 2½ years, and first walked at 3. He had always been fat and heavy, and never played with other children. He was good natured; was mentally apathetic, with the eyes always crossed; could not read; spoke only phrases (no sentences); was neither constructive nor destructive; had a ravenous appetite, and was sleepy. He had measles, pertussis, and pneumonia three times; circumcision, tonsillectomy and adenoidectomy had been performed. He had a large, quadrangular skull; coarse, dry hair; a female contour, with broad pelvis, enlarged mammae, and marked mons veneris. The external genitalia were of the female contour, with the penis in the position of an enlarged clitoris. There was no hypospadias. The external genitals were infantile. The feet were large, the hands pudgy, with marked muscular hypotonicity. Tache cérébrale and dermatographia were noted. No prostate was felt rectally. The mental age was from 3 to 4 years, or six years' retardation. The systolic blood pressure was 118; diastolic, 62. The urine was normal. The blood

picture, Wassermann reaction and Pirquet test were negative. The blood sugar curve was: fasting, 0.103 per cent.; one-half hour later, 0.129 per cent.; one and one-half hour, 0.107 per cent.; two and one-half hours later, 0.088 per cent. The renal sugar curve was negative. The eye fundi were normal. Roentgen-ray examination of the sella and skull were negative. The sphenoidal angle was 152 per cent.

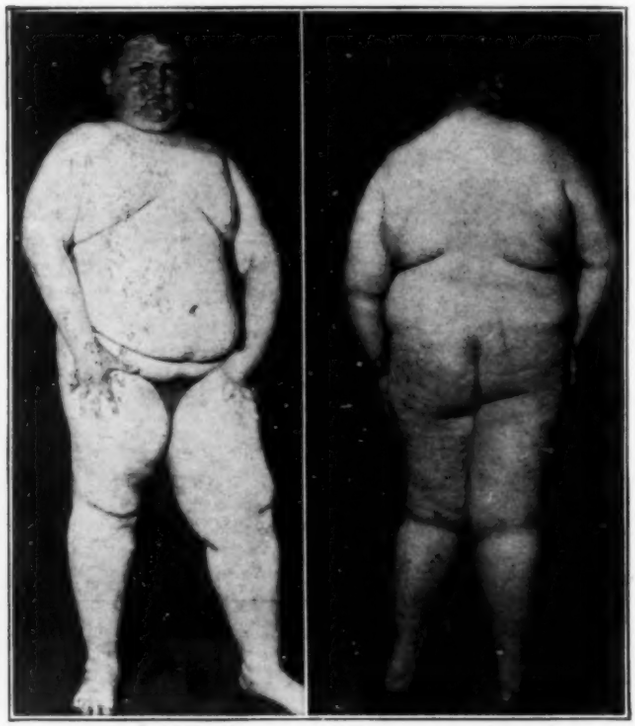

Fig. 4 (Case 8).—Appearance of patient, aged 12 years; mental age, 5½ years: skeletal overgrowth, with tremendous obesity and genital infantilism; small hands, with short, tapering fingers (acromicria).

The conclusion was: feeblemindedness, with adiposogenital dystrophy.

Case 5.—The twin brother of the preceding patient gave similar findings as to history, physical examination, mental examination and laboratory tests, except that Patient 4 was fatter, weighing 7 pounds (3.2 kg.) more, and being 1 inch taller, and the sphenoidal angle was 155 degrees. The figures for the blood sugar curve were 0.116, 0.149, 0.139 and 0.106.

The conclusion was: feeblemindedness associated with adiposogenital dystrophy.

Case 6.—A boy, aged 11 years (Figs. 2 and 3), whose family history was negative, sat up at the age of 6 months and walked at 18 months; he was slow in talking. He was mentally retarded, and was in the low second grade, making practically no progress; he was timid and irritable, and did not get along with other children.

He was 4 feet and 6 inches (137 cm.) tall, and weighed 94 3/5 pounds (42.9 kg.). The upper eyelids were puffy; there were fat pads over the frontal region of the head and on the abdomen; the hands were pudgy. The skin was dry, slightly rough and somewhat thickened. The hair was very coarse and dry. There was a typical hyperextensibility of all the joints, with hypotonicity of the musculature. There were practically no eyebrows over the outer half. The thyroid was palpable. The prostate was from one-half to one-fourth the normal size, and much thinner than would be expected; no secretion was expressed on massage. The left testis was about the size of an almond kernel; the right testis was atrophied.

The intelligence quotient was 56; information was exceedingly poor; he failed in almost all questions of the information questionnaire, knowing only the name of the first President. He took no interest in anything; he was dull and indifferent. A roentgenogram of the skull revealed the sella of normal size and shape; the frontal sinuses, small; the antrums, large.

The conclusion was: feeblemindedness; adiposogenital dystrophy.

PREADOLESCENT HYPOPITUITARISM—LORAIN TYPE

Case 7.—A boy, aged 15 years, had not grown for two years The family history was essentially negative except for a sister, aged 17, who had secondary sex characteristics, but was quite short and fat and mentally aged about 3. The boy had had measles and mumps; the tonsils and adenoids had been removed. The patient felt well.

He was underdeveloped and slender. His height was 4 feet, 6¼ inches (137.8 cm.); weight, 65¼ pounds (29.7 kg.). He appeared physically to be about 8 years old; the genitalia were infantile; there were no secondary sex characters; the prostate was very small.

The mental age was 9 years, or six years' retardation. Information was meager and vague, both for simple facts of school knowledge and for general information. His native ability was generally inferior. His memory and reasoning were both poor.

The urine and the blood picture were normal. The Pirquet test was positive. The blood and spinal fluid Wassermann reactions were negative. The urine sugar curve was negative. The blood sugar curve was: 0.067, 0.135, 0.122, 0.113.

The conclusion was: high grade defective; Levi-Lorain type of hypopituitarism.

PREADOLESCENT DYSPITUITARISM

Case 8.—A markedly obese boy, aged 12 years (Fig. 4), at the age of 1½ weighed 30 pounds (13.6 kg.) and was still increasing in weight; at this time he began to be drowsy, and seemed sleepy all the time; when we saw him he slept fifteen hours a day. He walked at 4½ years. He had always had a ravenous appetite. At the age of 11 years he began to have convulsive attacks occurring two or three times a day; the attacks lasted a few seconds, followed by drowsiness. He made almost no progress in school. He was nervous, irritable and stubborn. He was a great lover of music; he paid no attention in school to anything but singing. He had a good memory for certain things.

He was tall and very adipose, with large, pendulous breasts; the hair was curly, crinkly and very dry. There was hypotonicity of the joints. The testes were small; there was no true prostate (infantilism). He weighed 253⅜ pounds (115 kg.). His height was 63½ inches (160 cm.). His span was 65 inches (165 cm.); upper measurement, 33 inches (84 cm.); lower, 30 inches (76 cm.).

Fig. 5 (Case 11).—The smaller of the children, at the left, is the patient at the age of 8: dwarfism and cretinoid facies. The larger child is 4 years of age.

The mental age was 5½ years; the boy was irritable, stubborn and uncooperative. His auditory memory carried him far above what his mental age would otherwise be in the Binet tests.

A roentgenogram of the skull revealed the sella normal. There was marked disproportion between the anterior and posterior portions of the cranial fossa. Roentgen-ray examination of the hands showed them normal for his age, with rather slender terminal phalanges.

The hemoglobin and erythrocytes were normal; leukocytes, 14,200. Differential count gave: neutrophils, 48 per cent.;

large mononuclears, 37 per cent.; lymphocytes, 37 per cent.; eosinphils, 12 per cent; basophils, 1 per cent. The urine and stool were negative.

The conclusions were: mental retardation with preadolescent dyspituitarism; skeletal overgrowth; enormous obesity; sexual infantilism.

CASE 9.—A girl aged 16 years, complained of "epilepsy." The family history was negative. Menstruation began at 12,

Fig. 6 (Case 11).—Patient at age of 9 years and 9 months, just before thyroid treatment was started. The mother has hypothyroidism, with a basal rate of 24 per cent. minus.

was never regular, occurred at intervals of six or seven weeks, and was always scanty, only two or three pads being required in two to three days. The first attack was at the age of 12 years, and she had had about one attack a month. She did well in school until about the age of 15. She was 61 inches (155 cm.) tall, and weighed 141¾ pounds (64 kg.). The fat distribution was general, not definitely girdled. The skin was dry all over the body, especially on the shins. The thyroid was of normal size. The psychiatric examination showed considerable mental deterioration; she repeated five digits, but failed on six. In repeating a story she could recall only a few facts, omitting details. She was emotionally indifferent; she had poor reasoning power and judgment.

The basal metabolism was 8.3 per cent. plus.

Roentgen-ray examination of the skull revealed prominent convolutional markings in the frontal region. The posterior clinoids were tilted slightly backward.

The conclusion was: epilepsy; mental deterioration; preadolescent dyspituitarism.

CHILDHOOD MYXEDEMA

CASE 10.—A girl, aged 14 years, who talked and walked at the normal period, had had measles at 3 years, whooping cough at 6, mumps at 9 and chickenpox at 10, all without complications. The teeth came slowly. Menstruation began at 12 years. The periods were irregular, the second period occurring six months after the first, and thereafter at intervals of about three months. The flow, however, was then copious, lasting about seven or eight days. When an infant, the child cried most of the time. She had always been extremely constipated, often going several days without a stool. Her appetite had always been poor, in spite of which she had maintained good weight. The skin had always been coarse and dry, thick and rough, and her hair likewise had been coarse and dry. She was irritable at times, sensitive about her condition, and cried easily. Her mental condition when seen in March, 1921, was about as follows: The mother described her as being interested in things about her, liking to play with dolls, but preferring to be alone and not in the company of other children. Formerly she played with other children, but always with those younger than herself. She rarely said much. The mother said that she had been in school in all about thirty-six months at irregular periods, and had recently been placed in the fourth grade.

The appearance of the child was very striking. She was heavy set, with thick, dull, stupid features, broad, thick, saddle nose, puffy eyelids and swollen lips. The skin generally was dry and coarse. The hair grew low on the forehead and was very dry, straight and coarse. There was a heavy growth between the eyebrows. The shape of the skull resembled that of a monkey. The breasts were unusually well developed and abnormally large for her age. There was a slight growth of pubic hair. The mandible was almost infantile, and the lower part of the face was poorly developed. The thyroid gland could not be felt. The abdomen was enlarged and protuberant. The height of the patient was 4 feet, 6 inches (137 cm.); weight, 71 pounds (32 kg.).

The intelligence quotient was 50. The child was ignorant of every-day facts of school knowledge and general information. Her native ability was markedly inferior; there was general impairment of the faculties. She was slothful and apathetic.

The conclusions were: low grade moron; childhood myxedema.

CASE 11.—A girl, aged 17½ years (Figs. 5, 6, 7 and 8) was first seen by us in September, 1922, because of listlessness and mental retardation. There was no similar disturbance in the family. A brother, aged 29, and a sister, aged 31, were apparently normal.

The patient was born at full term, of normal birth. The birth weight was 9½ pounds (4.4 kg.). The first tooth came at 2 years, and the rest all came slowly. She did not walk until almost 3 years. She began to say "mama" and "papa" between 3 and 4 years of age. She was not an irritable child—she "just sat." She looked like a "little old woman." Her hair and skin were very dry. Her growth was very slow, and she was physically and mentally backward.

At 9 years and 9 months her height was 2 feet, 10 inches (86 cm.). At this time a physician in Sacramento recognized her condition as "childhood myxedema" and instituted treatment with thyroid extract. For the following seven years she took 3 grains (0.2 gm.) of thyroid extract daily. The changes were astounding. She is said to have grown 18 inches during the first year of treatment, and then slowly after that. The mother discontinued treatment nine months before consulting us.

Fig. 7 (Case 11).—Patient at age of 10½ years, having grown 6 inches.

Menstruation began at the age of 15½ years; it was regular for two months, then ceased for four months, and then was regular for six months. For four months prior to consulting us, no menstrual periods had occurred.

The appetite was poor; the bowels were badly constipated; the patient was always sleepy, sluggish and listless. Despite her poor appetite she had gained weight steadily. She felt "cold all the time."

Her mental age was 9 years and 3 months, or eight years' retardation. She was graded as feebleminded (moron).

Her skin was dry, rough, scaly, coarse and cold. Her hair was coarse, dry and brittle. The secondary sex characters were well developed. A normal sized uterus was felt rectally. Her weight was 106½ pounds (48 kg.). Her height was 4 feet, 9 inches (145 cm.); span, 54 inches (137 cm.); upper measurement, 31 inches (78.7 cm.); lower, 26 inches (66 cm.), showing very short arms and legs.

The red blood cells numbered 3,300,000; white blood cells, 6,400; hemoglobin, 77 per cent.; polymorphonuclears, 44 per cent.; lymphocytes, 50 per cent.; large mononuclears, 3 per cent.; basophils, 1 per cent.

A roentgenogram of the chest was negative for substernal thyroid or thymus shadows. Roentgenograms of the skull and of the hands were negative; epiphyseal development was normal for the patient's age.

The basal metabolism was 26.45 per cent. minus.

The conclusion was: mental retardation, associated with childhood myxedema.

PLURIGLANDULAR DYSTROPHY

CASE 12.—A woman, aged 44 years, had never menstruated. She had always been severely constipated, and always pale and cold. The patient was small, slender and short, with a peculiar, thick, deep masculine voice; her height was 57 inches (145 cm.); upper measurement, 26½ inches (66 cm.); lower measurement, 30½ inches (76 cm.). The skin was dry, thin and wrinkled; the hair, plentiful on the scalp, but very scanty on the eyebrows, axillae and pubis. The patient had a saddle nose, and expressionless eyes with heavy eyelids. There were many wrinkles round the eyes, mouth and forehead. The facial appearance was monkey-like. The thyroid was not palpable. The breasts were practically undeveloped. There were infantile external genitalia. No uterus was palpable rectally. There was a cordlike mass spanning the pelvis suggesting a rudimentary uterus. There was a small round object, the size of a bean, in the right broad ligament, probably an ovary.

The systolic blood pressure was 90; diastolic, 60. The urine was normal. The blood count indicated marked anemia. The blood and spinal fluid Wassermann reactions were negative. Roentgenograms showed a normal sella turcica, and the epiphyses of the hands and feet joined. The sugar curve was normal. The basal metabolism was 6 per cent. below normal. The mental age was 9.

This patient showed pluriglandular deficiency involving the pituitary, thyroid, ovaries and suprarenals. The face was cretinoid; but the skeletal undergrowth without adiposity and aplasia of the genitalia resembled that of Lorain infantilism.

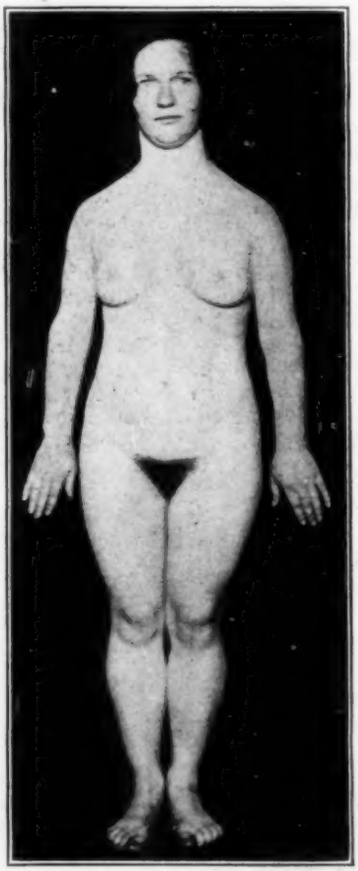

Fig. 8 (Case 11).—Patient at age of 17½ years; mental age, 9 years and 3 months; short arms and legs; well developed secondary sex characters.

SUMMARY

These twelve cases speak for themselves, and require no elaborate discussion. The mental retardation is definite in all, and the endocrine disturbances are likewise obvious. It has already been indicated that a glandular origin for the mental retardation must remain for the present an unproved theory. It is to be noted, however, that thyroid feeding definitely advances the intelligence of mentally defective subjects of congenital myxedema. When pituitary extracts of similar potency are available, comparable results may be achieved in mental defectives, the subjects of dyspituitarism. Since the proof of such a contention hinges on mental improvement by appropriate organotherapy, it may be stated that considerable experience with pituitary preparations now available has resulted in suggestive and encouraging results in a few instances, but not sufficiently striking or consistent to prove the foregoing hypothesis at present.

ABSTRACT OF DISCUSSION

DR. C. E. REYNOLDS, Los Angeles: A man, between 40 and 50, had been suffering from epilepsy for two years and had had recently several attacks of petit mal followed by automatism every week. The roentgenogram showed a very small enclosed sella turcica. He had been under dietetic treatment, so that my only treatment was to put him on pituitary whole gland substance. He improved immediately and has not had an attack for a year. His blood pressure was 190, but shortly after treatment it came down to about 140 and stayed there. Another suggestive case is that of a boy who developed very severe grand mal attacks immediately after whooping cough four years before I first saw him. On this date he had three seizures. He had not grown an inch since he had the whooping cough. Stereoroentgenograms showed a very shallow and enclosed sella turcica. Pituitary extract had no effect on him, but after suboccipital operation he suddenly grew a foot in the ensuing year and his seizures gradually diminished to the extent that he has not had one since Nov. 22, 1922. What the relation could be between an operation for basal arachnoiditis and cyst, and the activation of the pituitary gland, I do not know, but such are the facts.

DR. WALTER TIMME, New York: There is a certain class of endocrine disorder which may be known as the status hypoplasticus in which there is, as Dr. Lisser well described, a hyperextension of all joints. The sacro-iliac ligament is lax, and the ligaments in the foot are lax. The heart is small and tubular; the vessels seen in the retina are small; and, as a result of that hypoplastic state, or concomitant with it, the blood picture is wrong. The polymorphonuclear count is low and the carbon dioxid combining power is lower. The blood sugar becomes lower after fatigue, and as a result of that, we know, in conjunction with the investigation that has been made with insulin (when insulin brings the blood sugar down below 0.04, the tendency to convulsion, especially of the epileptic type, is quite pronounced), that in these cases of status hypoplasticus attacks of epilepsy occur occasionally. When efforts are made to remedy the blood sugar content, often there is an improvement in results. But one must be very careful to realize that these cases are not pituitary in origin, but that they are hypoplastic cases; and when that condition is remedied, the symptoms change for the better.

DR. HAROLD W. WRIGHT, San Francisco: It has been found by those working in diabetes insipidus that the treatment with pituitary gland has not been effective unless it is put up in tablets coated with phenyl salicylate, because of disintegration in the stomach.

DR. CHARLES E. NIXON, San Francisco: The presence of endocrine disturbance in epileptics and the feebleminded has long been noted. It is not a mere fortuitous occurrence. The relationship may be very much that of the blood picture and the nervous symptoms in pernicious anemia. They doubtless have a common etiology in many instances. That may be true in these cases of epilepsy and feeblemindedness. It certainly aids in the treatment if we recognize the ductless gland disturbance. That is why persons who have an outspoken endocrine disturbance, when treated for that disturbance, improve. In certain of these conditions the etiologic relationship is more definite. It has long been noted that, in pituitary disease, patients have peculiarities resembling, and doubtless many cases have been diagnosed as, epilepsy when the basis has been some pituitary disease. In reference to the use of capsules coated with phenyl salicylate, most of these patients who

have had pituitary extract by mouth received it in these capsules. We have to be very careful in drawing any conclusion in regard to results of treatment, as to whether that gland of which the extract is being given is the gland at fault. We are merely getting a certain pharmacologic effect, as when we give atropin or some other drug; it may be that in those cases in which we get results with ductless gland administration, it does not necessarily mean that those glands are at fault. I think it is extremely important to make a diagnosis of any outspoken ductless disturbance in feebleminded patients and treat that as we can.

GIANT-CELL TUMOR OF THE LOWER END OF THE RADIUS

REPORT OF CASE

FERDINAND P. HERFF, M.D.
SAN ANTONIO, TEXAS

Probably no medical subject presents greater uncertainty than the study of bone neoplasms. Even a cursory examination of the literature reveals decided differences in classification and treatment, incident to which there is considerable confusion. An outstanding feature in these observations is a tendency toward conservatism in dealing with new growths of bony structures. To illustrate this, it may be well to preface our subject proper by a few general remarks and a recapitulation of some axioms of Bloodgood and

Fig. 1 (July 6, 1921).—Considerable bone still present in capsule surrounding growth.

others. Vagueness as well as apparent disagreements may be explained, at least in part, by:

1. The comparative infrequency of bone tumors. Since only a limited number of cases have been studied, statistical values are only relative.

2. Dependence on roentgen-ray findings which have not been accurately correlated with clinical and laboratory data. Take, for example, the fallacy of trying to make a positive differential diagnosis roentgenologically between benign bone cyst, central giant-cell tumor and central sarcoma.

3. Continued use of misleading terms. Under this caption we may refer to the employment of the expression "central giant-cell sarcoma" when speaking of a benign giant-cell tumor. Practically every authority admits that this is a benign growth; many writers have pointed out the fallacy of calling it a sarcoma, but with

Fig. 2 (September 5).—Entire bony capsule has disappeared, leaving only the thin periosteal shell.

few exceptions have continued to employ this misnomer. Clearly, great harm can be done by employing so deadly a name for a comparatively innocent neoplasm. This applies more particularly to the occasional bone surgeon, who no doubt has often been misled from indicated conservatism to radicalism by laboratory reports resorting to the foregoing misnomer. I believe that the term "myeloma" should not be used in referring to the disease mollities ossium, which is a constitutional marrow disease and in a true sense not a tumor. Further, it is advisable to abandon the expression "giant-cell sarcoma," even when dealing with a truly malignant type, and instead employ "sarcoma with giant-cell infiltration." We would thus entirely drop a term which has been used interchangeably for malignant and benign neoplasms with consequent confusion. Foreign writers, in speaking of the benign giant-cell tumor, are largely limiting themselves to the expression "osteitis fibrosa."

4. Employment of unpractical classifications, namely, those depending didactically on cell differentiations and not taking into account that certain definite cell arrangements exhibit dissimilar tendencies in different locations. For example, Bloodgood has demonstrated that myxomatous tissue found in neoplasms of the long pipe bones implies a high degree of malignancy, which is not the case when this tissue is found in the phalanges of either the feet or the hands. Therefore, a practical clinical classification is necessary as a working basis for the general surgeon who encounters occasional bone surgery. Laboratory outlines alone are often confusing.

Observations that should influence every bone surgeon are:

1. Since the most radical measures have given a small percentage of cures in true malignancies, they

Fig. 3 (November 17).—Shortly after the first currettement: reappearance of bony tissue in capsule.

should be positively proved before one resorts to amputations. "The burden of proof is to demonstrate that the lesion is malignant" (Bloodgood).

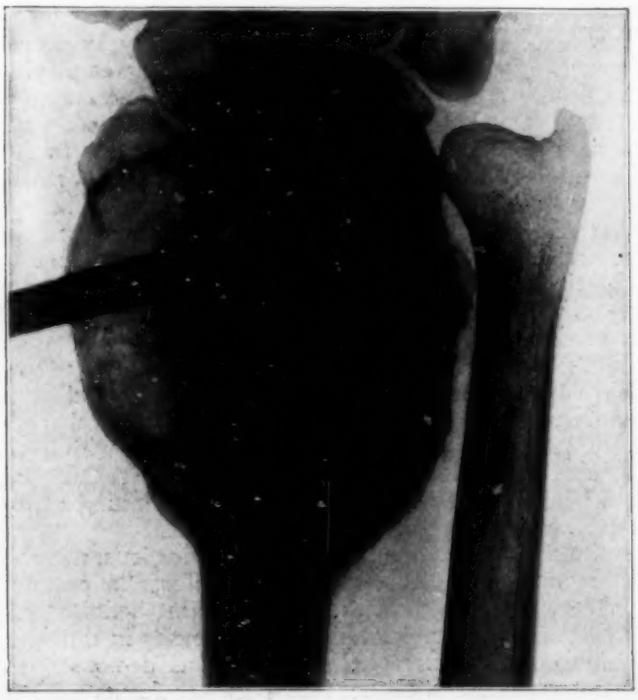

Fig. 4 (December 1).—After second currettement: drainage tube in situ; increase of bone in capsule.

2. In all doubtful bone cases, the patient is to be treated for syphilis. Even in the presence of a negative Wassermann reaction, intensive antisyphilitic treatment should be given for several weeks.

3. Roentgenograms should be made of the lungs and the entire skeleton if there is the least doubt of a true diagnosis.

4. Bone hyperplasias are more apt to be benign than malignant. Central growths show a greater ratio of malignancies than periosteal forms.

5. Perforation of the capsule of a central growth is suggestive, but not diagnostic, of malignancy.

6. An Esmarch bandage should always be applied in the exploration of growths. One should be prepared to carry out any procedure, from cauterization to resection.

7. Spontaneous fracture is highly suggestive of bone neoplasms, under the age of 15 years being almost pathognomonic of benign cyst; above that, the ratio of possible bone malignancy increases with age.

8. One should beware of myxomatous tissue when exploring lesions situated in the long pipe bones. It is almost certainly significant of an underlying malignancy.

Fig. 5 (December 23).—After third currettement: cavity filled with bismuth paste: thickening of capsule.

9. Lesions beginning on the cartilaginous surfaces of the joints are nearly always inflammatory, tuberculous or syphilitic.

10. Systematic roentgen-ray examinations and treatments should be instituted after removal of a bone tumor, whether malignant or benign.

Giant-cell tumors are usually posttraumatic. The general tendency today is to consider them inflammatory. They occur rarely below the age of 15, more often between 15 and 20, commonest between 20 and 30, and occasionally after 30. As a rule they are central, but a few periosteal ones have been described. They are really benign in character, although local return may take place. This recurrence does not signify malignancy any more than does a like tendency in keloids. One is led to doubt the diagnosis when metastasis is said to have occurred. There are undoubtedly some cases in which it is difficult to differentiate between benignancy and malignancy.

Whether these cases are merely examples of a close microscopic resemblance demanding very exact technic or whether they prove that there is a true transition from the giant-cell tumor to the true central sarcoma is a debatable question. Since central giant-cell tumors practically always follow injury, and since many sarcomas can be traced to traumatic origin, it perhaps leads to the unsettled point of the relation of chronic inflammations to incipient malignancies in general. Giant-cell tumors are usually located at an epiphysis; hence the absence of spontaneous fracture.

Macroscopically, the giant-cell tumor consists of friable tissue varying from a pinkish to a reddish hue. It is readily broken up with a curet, and in its recent state contains no bone formation. Microscopically it is really not a tumor, in a true sense of being actually a granuloma or a mass of inflammatory tissue. The giant cells present, according to general belief, are caused by a union of numerous phagocytic leukocytes, which have gathered about a particle of bone or some

Fig. 6 (March 15, 1922).—Continued bony thickening of capsule.

other loose matter and thus have become fused into one great cell.

The diagnosis cannot be based entirely on the presence of this benign giant cell, since it is also found in truly malignant growths in conjunction with the giant cell having a polylobular nucleus. The pathologist, therefore, must depend in large part on the presence of mitotic bodies in determining the nature of the lesion.

Giant-cell tumors may terminate in several ways:

1. Spontaneous calcification of the granulomatous mass occasionally takes place. This amounts to a cure.
2. The mass usually increases gradually in size, and, in the end, absorbs all the bone cortex, causing an ultimate collapse of the shell and invasion of the soft tissue with infection and destruction of function.
3. True malignancy is said to intervene.
4. Eradication by surgical means may end the new growth.

TREATMENT

As has been mentioned, the growth has a tendency to local recurrence; but, since it has no metastatic properties, it cannot be considered malignant. The treat-

Fig. 7 (June 2).—Progressive bone deposit.

ment should therefore be a conservative one. Briefly, it may be summed up thus:

(*a*) Free opening and thorough curetting of the involved bone.

Fig. 8 (Jan. 9, 1923).—Gradual calcification of mass: marked increase of bone tissue at junction of healthy shaft with tumor mass.

(*b*) Pure phenol (carbolic acid) or actual cauterization of the remaining cavity.

(*c*) Crushing in of the shell, if feasible.

(*d*) Treatment of the remaining cavity by the open method. I would condemn filling the cavity with bone wax and other compositions and treating by the closed method because such a step does away with the possibility of attending properly to the remaining osteomyelitic cavity. One reported case[1] brings out this by citing a collapse of the involved bone more than a year after the cavity had been treated with bone wax and closure.

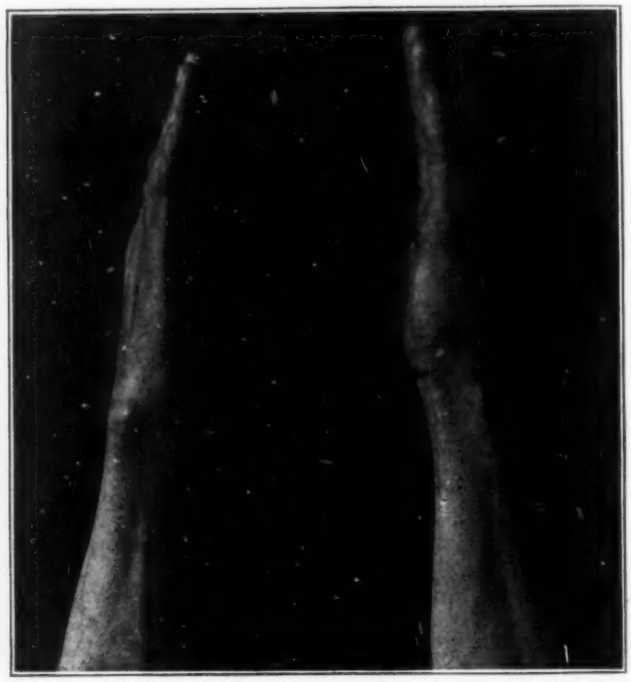

Fig. 9.—Present condition of patient; the lateral view shows only slight enlargement.

(*e*) Employment of the roentgen ray or radium. I prefer the roentgen ray because of its accessibility to the involved area and because of its stimulative effect on the healthy bone. Employing the roentgen ray or radium without previously curetting does not give us the advantage of removing sections for accurate microscopic diagnosis.

If there is a return of the growth, curettement should be repeated. This recurrence may be recognized by: (1) return of swelling; (2) continued discharge; (3) pain and inflammatory reaction, and (4) the roentgen-ray picture.

Several curettements are advisable before resection of bone is considered. However, the advisability of deciding on an earlier resection depends on which bone is involved. It is to be remembered that the restoration of a normal functioning joint with a fibular graft in case of the removal of the lower end of the radius is a difficult matter; hence, in this location, resection should be put off as long as possible. In dealing with the lower end of the ulna, more prompt resection may be employed because of the lesser interference with the wrist joint.

REPORT OF CASE

L. Z., a man, aged 23, whose family and personal history were negative, injured the right wrist while holding a horse, Jan. 2, 1921. For two days the wrist was painful, but neither swollen nor tender. He worked for a month, the wrist feeling normal, when he noticed marked tenderness on hyperflexing the hand. He used a leather wrist support.

April 1, there was a slight swelling at the lower end of the radius, which pained when in motion and in a month became markedly tender and larger.

July 6, the patient consulted a surgeon, when the first roentgenogram was taken (Fig. 1). All blood tests were negative, including the Wassermann. The urine was negative. Antisyphilitic treatment was given for six weeks, including mercury, the iodids and neo-arsphenamin. No impression was made on the growth.

October 6, the tumor was explored. It was opened on the radial side, and the contents were found to be friable and of about the consistency and color of calves' brains, and entirely free from bone formation. There was profuse bleeding when the shell was reached. This shell was perforated on the ulnar side of the cavity. The cavity was cauterized with phenol. Considerable reaction followed the curettage. There were pain and throbbing for several days. Treatment was given for a month by gauze packing and with iodin and surgical solution of chlorinated soda, and similar solutions. The tumor remained elastic and tender and did not decrease in size. Laboratory diagnosis was giant-cell bone tumor (osteitis fibrosa). The discharge for six weeks was bloody and watery.

November 18, the cavity was again curetted. Considerable granulation tissue was removed. The character of the discharge from now on resembled olive oil. Roentgen-ray treatments were given and pictures made at frequent intervals. By Jan. 1, 1922, the mass had hardened and the wrist had decreased considerably in size, but on March 25 a streak of lymphangitis appeared, extending from the wound to the lymph nodes situated on the sheath of the brachial artery. A small amount of pus was evacuated. One week later the cavity was again curetted and a fair amount of tumor tissue was found to have returned. Since then the patient has steadily improved, and at present the wrist seems practically normal in every way with the exception of a slight interference with the motion of the joint. There is no pain or tenderness, no discharge, and no tumor is apparent. The patient uses the hand, and the bone remaining is extremely solid and hard. Were it not for the roentgenograms, we might consider this case cured; still, the last picture, taken October 20, shows a continued vacuolar state of the bone. Further calcification will probably take place.

Fig. 10.—Present condition of patient; the anteroposterior view shows absence of tumor.

1. Bancroft, F. W.: S. Clin. N. Am. 1: 1747 (Dec.) 1921.

CONCLUSIONS

1. Nomenclature has had a certain confusing effect in the handling of bone tumors, and the literature should be definitely purged of misleading terms.

2. The name "giant-cell sarcoma" should be entirely eliminated and replaced by the expressions "giant-cell tumor," "osteitis fibrosa" or "benign tumor with giant-cell infiltration" when referring to benign growths. In case of a true malignancy, the expression "sarcoma with giant-cell infiltration" should be employed.

3. A mixed clinical and cytologic classification is necessary to guide the surgeon.

4. All benign central tumors should be primarily treated by the open method. The wound should not be closed without drainage. This allows frequent explorations with the curet for the return of the growth and prevents ill results from the remaining osteomyelitic cavity. Resection should be resorted to only if there is a recurrence after repeated curettements. One should adhere to conservatism according to the degree of functional disturbance liable to result from the removal of the particular bone end involved.

5. Even the most apparently benign tumors should be given roentgen-ray treatments.

City National Bank Building.

CHRONIC ACTINIC CHEILITIS *

SAMUEL AYRES, JR., M.D.
LOS ANGELES

The purpose of this brief report is to call attention to a chronic inflammatory disorder of the lip, due apparently to the actinic or chemically active rays of sunlight. In a review of available literature and of current textbooks on diseases of the skin, no mention could be found of sunlight playing an etiologic rôle in chronic cheilitis. Montgomery and Culver [1] mention "the scurfy, scaly lip of the outdoor worker," as seen especially in the hot, dry interior regions of California, but they apparently attribute the effect to "wind and weather," without any specific mention of chemically active light. Dry heat and wind no doubt do cause a drying and an eczematous condition of the lips, just as it may affect the skin. That sunlight may exert a very pronounced effect on the lips is a matter of common observation to many city folk after their first excursion to the beach in the summer. The acute "sunblisters" represent an inflammation which is due almost entirely to the ultraviolet or chemical rays, rather than to the heat rays.

In experimental confirmation of this view may be cited the instances of herpes developing within a few hours after accidental exposure of the lips to the mercury vapor quartz lamp during treatment of the face. In one instance coming under my own observation, in which, through faulty technic, the lip was not entirely covered, herpes of the vermilion surface developed a few hours after a single exposure of one and one-fourth minutes at a distance of 8 inches from the air-cooled lamp, and was not entirely healed for twenty-three days. The patient afterward stated that she developed herpes of the lips very easily after exposure to sunlight. It does not require a great stretch of the imagination to conceive how such a susceptible person, exposed constantly or repeatedly to strong sunlight, might develop a chronic inflammation of the lip which would be rebellious to all treatment as long as the exposure continued. In fact, such a condition would probably be considerably aggravated by anything but the mildest sort of treatment, and simple protection from sunlight would probably be of more benefit than anything else.

Since rational treatment depends on a recognition of the cause of a disease, it would seem desirable to set aside cases of this sort as constituting a distinct disease entity based on etiology. The fact that treatment differs very materially from that used in ordinary cheilitis exfoliativa is an additional argument for segregating this group. On the other hand, dermatologic nomenclature is so surfeited with complicated names for unimportant subdivisions and variations of diseases, that one hesitates to add to the already unwieldy vocabulary. Possibly the parenthetical designation "actinica" or "actinica chronica," after the diagnosis "cheilitis exfoliativa," would suffice for recognition.

The diagnosis of chronic actinic cheilitis should not be difficult. The intimate association of the disorder with exposure to sunlight is the most striking point in the history. It is usually recurrent, occurring during the summer months, especially in localities where sunlight is most intense, as in the mountains, at the beach, and in southern California, even in the cities. It occurs by preference in those people who are habitually exposed to the sunlight, such as farmers, pedlers and golfers. It is really a variety of cheilitis exfoliativa. The attack frequently begins with a group of vesicles on the vermilion surface of the lower lip, which soon become confluent, crusted, scaly, and sometimes fissured. When chronicity has become established, the lip presents merely the picture of a crusting and scaling inflammation, sometimes with slight swelling. Treatment is demanded not only for the discomfort and disfigurement, but also for potential malignancy. All of the cases seen thus far have been in blonds or partial blonds. It has been impossible to study the histologic structure, since none of the patients were willing to submit to a biopsy.

Other disorders of the lip which should be considered before making a final diagnosis are: cheilitis exfoliativa due to other causes, as the seborrheal type; cheilitis glandularis apostematosa, characterized by increase of mucous gland tissue of the lip with dilatation and hypertrophy of the ducts and an excessive mucopurulent, sticky secretion; [2] Fordyce's disease; leukoplakia; lupus erythematosus, and a variety of disorders in which the lip is involved as part of a more generalized disease, such as chancre or mucous patches of syphilis, and stomatitis of pellagra, sprue, pemphigus, erythema multiforme and chronic arsenic poisoning.

REPORT OF CASES

CASE 1.—L., a man, aged 64, a junk pedler, had been troubled for four months (May, June, July and August) with a crusted lesion of the lower lip. There had been two previous attacks during the same months of the preceding two years, with complete freedom during the winter. The first attack began about four months after the patient had come

* From the Department of Dermatology, White Memorial Hospital.
* Read before the Section on Dermatology and Syphilology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

1. Montgomery and Culver: M. Rec. **98**: 141 (July) 1920.

2. Sutton, R. L.: Diseases of the Skin, St. Louis, C. V. Mosby Company.

to southern California from St. Louis, where he had lived for many years. Treatment of the other attacks, which had consisted in the application of various drugs, and other measures, including the actual cautery, had for the most part considerably aggravated the condition. During the past two months of the present attack he had received from another physician four roentgen-ray exposures, which seemed to irritate the lip considerably; the last exposure was two and one-half weeks before I saw him, following which the lip had been worse than ever.

Examination showed, in the first place, that the lower half of the patient's face was heavily tanned, in marked contrast to the upper part of the face, which had been shaded from the sun by a cap. The patient was a semiblond, having blue eyes and dark hair. Only the lower lip was affected. There was a linear crusted, fissured, oozing area extending along the junction of the vermilion surface with the true mucous membrane. The entire lip was somewhat puffy and redder than normal. There were no lesions elsewhere on the cutaneous surface, and no seborrhea in the scalp.

A soothing lotion of phenol (carbolic acid), zinc oxid and lime water was used for about three weeks with very striking improvement. The use of hydrous wool fat for another week witnessed a complete return to normal. During treatment, the patient wore a broad-brimmed straw hat which shaded the entire face. In reply to a letter of inquiry written a year later, the patient stated that his lip had not bothered him during the past year, except for slight dryness during the summer. This had been relieved by an occasional application of compound tincture of benzoin. The lip was normal at present. It is, of course, a matter of speculation as to whether the roentgen-ray treatments had rendered the lip incapable of responding in the usual manner to sunlight, a possibility strengthened by the fact that the patient had not been very conscientious in the matter of wearing his broad-brimmed hat.

Fig. 1.—Appearance of lip in Case 2.

CASE 2.—O., a man, aged 44, a peddler, and a friend of Mr. L., reported above, was having his second attack of sore lip. He had lived in Los Angeles for two and one-half years, having come from New York, where he had worked indoors. The first attack occurred during the summer, beginning a few months before his arrival and lasting about two months, finally disappearing without treatment. The present attack began in May, and had lasted ten weeks. He had had no treatment. The lesions began as "fever blisters," which later became crusted and scaly. He had been wearing a cap that protected only the upper half of his face. Other parts of the skin had never been affected.

The lower lip showed a linear, crusted, slightly scaly lesion or series of lesions along the junction of the mucous and vermilion surfaces, with slight scaling over the vermilion surface. There was very little swelling.

The patient was given a paste containing zinc oxid, corn starch and petrolatum, and advised to wear a broad-brimmed hat. The lip was practically normal within a week. The patient has not been seen again, and a letter of inquiry written a year later was not answered.

CASE 3.—S., a man, aged 40, a timekeeper, had had trouble with his lips for the past twenty years. He had lived in southern California for the past eighteen years, but thought that the eruption began several years before coming West. He had worked outdoors most of his life, and felt quite certain that exposure to sunlight caused the inflammation. It had always been better during the winter or during rainy or cloudy weather. Twelve years ago, for a period of three years, while engaged in indoor work, the lip was entirely well most of the time. Two and a half years ago the lip was treated by means of radium tubes. After the reaction had subsided there was improvement for about six months, but during three months of this time the patient was sick in the hospital with typhoid. Since then the lip had been scaly, crusted and oozing most of the time. He had never noticed any true vesicles resembling herpes. The lips itched and burned considerably. A proprietary ointment gave some relief.

The vermilion surfaces of both lips, especially the lower one, showed diffuse, superficial, closely adherent, small crusts. There was no oozing. There was a moderate superficial atrophy, such as might have been caused by radium. It is of interest to note that although the patient protected his face from the sun last summer by wearing a sombrero, his lip was no better. This suggests the possibility that his cheilitis, ordinarily due to sunlight and relieved by protection from sunlight, had given place to a mild chronic radiodermatitis. The backs of the hands showed a dry, fissured eczema; the body showed generalized diffuse scratch marks from a pruritus of four years' duration. The patient was to have returned for a general examination, but failed to report.

CASE 4.—C., a man, aged 30, a medical student had been troubled with an inflammation of the lower lip nearly every summer for the past fourteen years. The patient was living in Michigan at the onset; he had lived in southern California for the past three years. The disorder occurred only when the patient was working out in the sun, usually lasted about six weeks, and was rebellious to all treatment except protection from sunlight. It began with redness, swelling and pain; usually there were no vesicles. The lesions were usually limited to the junction of the vermilion and mucous surfaces. In a few days, scaling and crusting developed, and persisted until the patient ceased to work in the sunlight. Roentgen-ray or radium treatment had never been tried. The patient said that he tanned readily, in spite of his blond complexion.

At the time of examination, the patient had not been exposed to sunlight, and the lip was entirely normal, although the summer just passed had been as warm and bright as usual.

CASE 5.—K., a youth, aged 14, a student, had been having trouble with his lips and skin for the past four summers. The disorder usually began in June, lasting three or four months, and affecting only those parts of the cutaneous surface exposed to the sunlight, clearing entirely in the winter. The lymph glands draining the affected areas were nearly always enlarged.

The lower lip was slightly swollen, superficially eroded, crusted, and scaly on the vermilion surface. The upper lip showed a sharply defined scaly patch, extending from the vermilion surface on the skin to a zone approximately midway between the lip and the nose. The skin over the lower half of the nose was reddened, thickened and excoriated. The skin of the extensor aspects of the forearms and hands was somewhat thickened, and covered with excoriated papules, confluent, crusted, eczematous looking areas, and small pea-sized scars from previous attacks.

COMMENT

The underlying cause of photosensitiveness is unknown. Meyer-Betz [3] of Königsberg, in an exuberant spirit of scientific research, succeeded in sensitizing himself to sunlight by the intravenous injection of 300 c.c. of a saline solution containing 0.2 gm. of hematoporphyrin. The experiment on himself was preceded by similar experiments on mice. After the injection, Meyer-Betz found himself extremely photosensitive, a condition which lasted about six weeks. Even the briefest exposure to sunlight resulted in most intense edema, pain and redness, followed by desquamation and tanning. Peeling and serous exudation of the lips

3. Meyer-Betz, F.: Photodynamic Action of Hematoporphyrin, Deutsch. Arch. f. klin. Med. **112**:476, 1913.

was pronounced. As long as he remained in the dark, he was apparently normal; diffused daylight did not seem to be harmful. Accompanying the acute reaction from exposure to sunlight, there was a moderate leukocytosis, chiefly due to an increase in the polymorphonuclears. No enlightenment was offered as to possible sources of hematoporphyrin under natural condition. Experiments with the bile pigments found in jaundice failed to induce photosensitiveness.

The important rôle of sunlight in the production of disease is worthy of more general recognition and research. Such diseases as xeroderma pigmentosum, seborrheal keratoses, epithelioma, hydroa aestivale, summer prurigo, pellagra, and a type of chronic, exfoliative cheilitis are due either wholly or in part to the chemically active, short radiations found in sunlight. In some of these disorders, a condition of photosensitiveness of unknown origin is probably an essential part of the process.

Fig. 2.—Inflammatory areas in Case 5.

SUMMARY

A chronic scaly, crusted inflammation of the lips, especially of the lower lip, is apparently caused by the chemically active or actinic light in sunlight, and may be designated "cheilitis actinica chronica," or "cheilitis exfoliativa (actinica chronica)."

This disorder is usually recurrent during the summer months.

Protection from sunlight, and soothing local applications, offer the best method of prevention and treatment.

Since the etiology and treatment of this variety of cheilitis differ from other varieties, it is felt that this disease should be recognized as a distinct entity.

Westlake Professional Building.

ABSTRACT OF DISCUSSION

DR. KENDALL P. FROST, Los Angeles: Dr. Ayres deserves credit for drawing this entity to our attention. There is nothing special to add to his remarks. Certain individuals appear much more susceptible to sunlight than others, and it is a certain phase of this group that Dr. Ayres has covered. It is probable that many people have mild forms of this disorder, but consider it a more or less normal condition. They do not appear for medical treatment, but use mild applications of their own invention for relief.

DR. H. M. GREEN, Portland, Ore.: Dr. Ayres is to be congratulated for naming this disease. I was called to the border in 1913 with some troops from Utah, and the captain of our artillery had a very bad attack of this sort and came to the physician for relief. I painted his lip with petrolatum without any result, but noticed that it occurred on days when we were out on march, so I advised him to wear a cigaret paper over the lip on those occasions. The condition never recurred as long as he wore the cigaret paper. I have also found that the keratoses in an old roentgen-ray burn have been increased by sunlight.

DR. EVERETT S. LAIN, Oklahoma City: I think it is important to remember this condition, for those of us who practice in the South and Southwest see many of these cases. The ordinary laborer refers to it as "sun burned lip" but I believe that it predisposes to epithelioma. The treatment Dr. Ayres has suggested is helpful in a temporary way, but I think he will get better results from the quartz lamp. As he mentioned, it makes it worse at first, but if he will repeat the doses over several weeks he will get an immunity that will protect the patients from future attacks.

DR. FRED WISE, New York: The cases that Dr. Ayres has presented are rather uncommon in the north temperate zone and are also uncommon in New York. I wish to know whether Dr. Ayres thinks we cannot distinguish these cases of actinic cheilitis from the ordinary exfoliative cheilitis cases which are very resistant to all methods of treatment — the quartz lamp, roentgen rays, ointments, and everything else. I once spent several months in the Southwest; the first case of this disorder that I saw was in an albino Navaho Indian. What Dr. Ayres said about blonds brought this case to mind. There are a number of albino Indians in the Navaho reservation, but I found many cases among the ordinary brunette Indians, many of whom have bleeding lips from exposure to the sun. I was interested in the treatment, especially in the remark made by Dr. Lain regarding the ultraviolet light. Having had no experience in treating the disorder in this way, I question whether this method does not do harm in the actinic cases. Is the healing by ultraviolet rays due to the actual application of the light or to a cauterizing effect per se? In my experience, even the cautery is not efficacious in many cases.

DR. JAMES HERBERT MITCHELL, Chicago: I have had cheilitis exfoliativa for several years and have also had experience with the cheilitis due to sunburn, or sunlight, if I go out in the spring or early summer and submit myself to sunlight for too long the first time. If I go out early, before the sun becomes very bright, and expose myself for short periods repeatedly, I do not have the trouble; but on a number of occasions I have gone on a vacation and exposed myself for an entire day, riding, or playing tennis or golf, and have had a great deal of trouble. The cheilitis in my case has readily receded with the use of salicylic acid and sulphur, and that due to sunlight is relieved by remaining indoors. I am also subject to herpes, and that will occur on exposure to wind. Since coming out to this dry country I have developed the exfoliative type. After driving most of yesterday, I awoke this morning with an attack of herpes.

DR. FRED D. WEIDMAN, Philadelphia: I can substantiate everything Dr. Mitchell has said. I am not at all subject to sunburn, but after visiting the Grand Canyon of Arizona I immediately developed sunburn of the skin and lips, and also herpes simplex.

DR. HARRY E. ALDERSON, San Francisco: As an old Californian, I wish to protest against the suggestion that sunshine produces all these lesions. As a matter of fact, we see a variety of conditions which are produced, or aggravated, by sunlight no matter where the patient may be when exposed to the sunlight. I have seen something similar in New York, London, Berlin, Honolulu and other places. I think the subject is very important and, as the discussion has demonstrated, it is something in which we are all very much interested. I was glad when Dr. Ayres brought up the question of tissue chemical changes, as underlying factors in the disease causing sensitization of the patient to sunlight, for I think that this is most important. We know that certain foods and drugs will render the skin more sensitive to actinic light.

DR. JESSE ETTLESON, Portland, Ore.: In Oregon we see these things very frequently. In fact, every Monday morning we usually see some cases in people not accustomed to exposure to reflected sunlight. For instance, many people climb Mount Hood. The experienced usually paint their faces with ordinary grease paint, and many others mix up many things with cold cream and apply it. We let them alone, and they readily get well.

DR. MOSES SCHOLTZ, Los Angeles: I hope that this disorder will not become known as a California disease. We do see a number of people who show various degrees of intolerance of California sunlight. As to the classification of the condition described, I would not consider it a separate entity. I believe it should be placed in the group of Hutchinson summer recurrent dermatitis of a peculiar localization. As to the treatment, I have tried in a few cases quinin ointment, recommended by French dermatologists, as a preventive of actinic burn, apparently with good results.

DR. LOUISE E. TABER, San Francisco: We see many of these cases in connection with people exposed to the rays of the sun, and I have found that the use of the ordinary lip rouge helps to protect the skin against exposure to sunlight and wind.

DR. SAMUEL AYRES, JR., Los Angeles: I was interested particularly in the remarks of Dr. Lain about increasing the tolerance, and shall try that out. I do not believe people will refuse to live in California on this account, for there are enough reasons for coming here to counteract this drawback.

MATCH AND MATCH-BOX DERMATITIS *

O. H. FOERSTER, M.D.
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In 1918, Rasch [1] of Copenhagen directed attention to the occurrence of a localized or extensive, often severe and distressing, dermatitis due to irritation induced by contact of the skin with the material composing the striking surface of certain safety matchboxes. This report led to the recognition in Denmark [2] and other countries, including the United States,[3] of the same etiologic basis for a number of instances of dermatitis of hitherto obscure origin. It seems that similar cases had been observed in Germany [4] and the United States,[5] and that the etiology was recognized in some [6] before Rasch's article appeared; the general interest in the subject which has led to the reports of additional cases, however, is attributable entirely to Rasch's first and subsequent [7] publications. As nearly as can be ascertained, all of the cases reported in the literature thus far have been due to contact with chemicals contained in the striking surface of safety matchboxes. In this contribution I record the occurrence in six patients of an acute dermatitis of variable intensity due to chemical irritation of the skin induced by carrying loose matches in the pockets—a match instead of a match-box dermatitis—and also an instance of exceptionally severe and extensive match-box dermatitis.

It will be of interest in this connection to refer briefly to the subject of match manufacturing so far as it bears on the etiology of match and match-box dermatitis. The introduction of matches followed some time after the discovery of white or yellow phosphorus by Brandt of Hamburg in 1669, and their manufacture on a commercial scale began in England in 1827, in Austria in 1831, and in the United States in 1836. Distinct advances in the industry occurred following the isolation of amorphous or red phosphorus by Schröter of Vienna in 1845, and the demonstration by Sevène and Cahen in France in 1898 that the nonpoisonous sesquisulphid of phosphorus could be substituted for the poisonous white phosphorus.[8] Among the materials used in the manufacture of matches are white and red phosphorus, phosphorus sesquisulphid, sulphur, antimony sulphid, chromium compounds, potassium chlorate, glue, rosin and powdered glass, all of which may produce dermatitis.

Two types of matches are to be considered here:

1. The "safety," or Swedish, match, first made in Bohemia in 1854, is a nonpoisonous match that ignites only on a prepared surface and contains in its head and as its chief ingredient potassium chlorate or other compounds rich in oxygen. In the manufacture of certain safety matches in Sweden, the paste used contains from 3 to 6 per cent. of chrome salt, calculated by Rambousek as equivalent to about 0.5 mg. for each match-head.[9] The striking surface on the box is made of a paste of glue and powdered glass or sand containing red phosphorus and at times antimony sulphid.[8] Owing to war conditions, the formula of the paste used for certain European brands of safety match-boxes was changed by replacing the red phosphorus by phosphorus sesquisulphid,[10] and this has been held responsible for the cases of match-box dermatitis reported by Rasch and others.

2. The "strike anywhere" match is made with a nonpoisonous paste containing 6 per cent. phosphorus sesquisulphid, 24 per cent. potassium chlorate, and zinc oxid, red ochre or other pigment, powdered glass, glue and water.[8] This type of match is in general use in this country, and is the etiologic factor in the cases reported here.

The old "parlor" or "lucifer" match, made with a paste of from 5 to 7 per cent. poisonous white phosphorus, potassium chlorate, pigments, zinc oxid, powdered glass and glue, ignites when struck with friction against any rough surface. It is no longer manufactured in this country. The old fashioned "sulphur" match has never been popular because of the disagreeable sulphur fumes produced on ignition, and it is seldom used now.

The white or yellow phosphorus is very poisonous, and has been the cause of much suffering in the match

* Read before the Section on Dermatology and Syphilology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

1. Rasch, C.: Ugesk. f. Læger **80**: 258 (Feb. 14) 1918.
2. Barfoed, Olivarius, Lomholt, Jacobsen and others: Ugesk. f. Læger **80**: 349 (Feb. 28) 1918.
3. Fox, G. H.: J. Cutan. Dis. **36**: 530 (Nov.) 1918. White, C. J.: J. Cutan. Dis. **37**: 125 (Feb.) 1919.
4. Loeb: Dermat. Ztschr. **24**: 240, 1917. Stranz, H.: München. med. Wchnschr. **68**: 548, 1921.
5. Eaton, W. E.: U. S. Nav. M. Bull. **11**: 540 (Oct.) 1917.
6. Frei, W.: Med. Klin. **17**: 461 (No. 16) 1921.
7. Rasch, C.: Ugesk. f. Læger **83**: 1119 (Aug. 25) 1921.
8. Oliver, Thomas: Diseases of Occupation, Ed. 3, New York, E. P. Dutton & Co., 1916, p. 35.
9. White, R. P.: Occupational Affections of the Skin, Ed. 2, New York, Paul B. Hoeber, 1920, pp. 83 and 93.
10. Strandberg, J.: Acta Dermato-Venereologica **1**: 116, 1920.

industry.[11] This led, in 1906, to the introduction in some countries, including Argentina, Great Britain, Canada, France, Italy, Norway and Spain, of legislation prohibiting its use in the manufacture of matches. The Congress of the United States passed the White Phosphorus Match Law in 1912, which placed a prohibitive tax on white phosphorus matches, and made their importation and exportation illegal after Jan. 1, 1914. In consequence, these matches have disappeared from the market. White phosphorus has been replaced in the match industry in this country by phosphorus sequisulphid, which, though nonpoisonous, may act as an irritant and cause dermatitis, conjunctivitis, and edema of the eyelids. Workers in French factories engaged in the manufacture of the sesquisulphid are required to bathe the eyes and douche the nose with sodium bicarbonate solution twice daily, which effectively prevents the inflammatory disorders.[8] The sesquisulphid may at times contain a trace of red phosphorus. Frei[6] found that chemically pure phosphorus sesquisulphid produced an inflammatory reaction of the skin, and attributes the irritant effect to the development of an as yet unknown volatile body. White[9] states that the sesquisulphid sometimes causes erythema and that, according to Legge, the "dippers" who handle or lean over the match paste develop a troublesome pustular eruption.

Among the workers in certain of the match factories in Sweden where chrome salts are used, perforations of the nasal septum and chrome dermatoses are not uncommon.[9] The chromates may be absorbed by the skin and mucous membranes, causing pit-like and burrowing phagedenic ulcers which are painful and difficult to heal. These lesions resemble syphilitic ulcers, and are most frequently located on the hands. Eczematous eruptions are also produced by chrome compounds.[12]

White,[9] quoting Herxheimer, says that "the paraffin on matches causes eczema on the hands of girls packing the matches in boxes," but suspects that rosin contained in the mixture is the real irritant.

In 1918, Rasch[1] of Denmark reported seven cases of match-box "eczema" occurring as mild burns on the thighs with associated lesions on the hands and face. Immediately following this, similar cases of previously unrecognized origin were reported in Denmark by Barfoed, Olivarius, Lomholt, Jacobsen and others,[2] and credited to the publication of Rasch's article and attributed to a certain Swedish brand of safety match-boxes. Rasch's experiment indicated the presence of white phosphorus in the striking surface of the box as the active etiologic factor in the production of the dermatitis. Johanne Christiansen,[13] after making numerous chemical analyses of these boxes, leaves the question undecided as to whether phosphorus sesquisulphid or additions of white phosphorus are the irritants.

Fig. 1 (Case 1).—Dermatitis of erythematopapular type, due to matches.

In 1920, Rasch[14] stated that a recurrent blepharoconjunctivitis was a fairly constant symptom in the cases observed by him.

In 1921, Rasch reported thirteen cases of match-box dermatitis in match factory workers and in others, caused by phosphorus sesquisulphid in the material of the striking surface of the boxes of a Swedish brand of safety matches bearing the picture of a ship. Some of these patients showed severe dermatitis of the fingers, neck and face, that resembled more or less closely a primula dermatitis.

In 1918, Fox[3] called attention to Rasch's publication, and in 1919 White[3] reported two cases of probable, though previously unrecognized, match-box dermatitis, and a third, proved case.

In 1920, Levin[15] presented a patient with match-box dermatitis before the section of Dermatology of the New York Academy of Medicine, and in the discussion Williams and Highman mentioned having seen similar cases.

MacKee[16] relates the history of a case that was unrecognized until after the appearance of Rasch's article.

Antedating all of these publications and reports, including those of Rasch, but unfortunately published in a government bulletin with a very limited circulation, is the brief report by Eaton[5] of five cases of match-box dermatitis of localized character, occurring during hot weather over cutaneous areas in apposition to shirt or trouser pockets in which boxes of safety matches were carried. This dermatitis responded to local applications, but recurred until the causative agent was discovered and removed. In one case a dermatitis also was present on the fingers of one hand and about one eye.

I have succeeded in producing a dermatitis experimentally on the thigh by carrying a box of safety matches in the trouser pocket for three days during hot and humid weather. A continuous sensation of intense burning and itching preceded by thirty-six hours the appearance of a localized erythematopapular eruption, and subsided during six days in which the dermatitis, after removal of the match-box, gradually disappeared, though an itching sensation recurred in the affected area during the following two weeks whenever the skin was hot and moist.

The following case reports include six of match dermatitis and one of match-box dermatitis.

REPORT OF CASES

CASE 1.—A manufacturer, aged 54, seen, Dec. 1, 1921, had had an itching inflammation of two years' duration, confined to the front of the left thigh. This area was at first pruritic without visible change in the skin; later it showed a moderately inflammatory eruption, which had varied in severity and had at times been entirely absent. The pruritus also had been intermittent, recurring suddenly after an absence of one or two months. The pruritus and inflammation had appar-

11. Andrews, J. B.: Phosphorus Poisoning in the Match Industry, Bull. 86, U. S. Bureau of Labor, Washington, D. C., January, 1910, p. 31.
12. Bulletin 100, U. S. Bureau of Labor, Washington, D. C.
13. Christiansen, Johanne: Ugesk. f. Læger, 1918, No. 14.
14. Rasch, C.: Dermat. Ztschr. **30**: 313, 1920.
15. Levin, O. L. A.: Match-Box Dermatitis, Arch. Dermat. & Syph. **2**: 92 (July) 1920.
16. MacKee, G. M.: X-Ray and Radium, Philadelphia, Lea and Febiger, 1921, p. 360.

ently been more pronounced when the skin was warm, as when heavy underwear was worn. There had never been an exudation or pronounced desquamation, and there had been no manifestations of cutaneous disease other than a recent itching of the skin of the eyelids without visible inflammation. The patient had been in the habit of carrying matches in the left trouser pocket; and though he discontinued smoking a year previously, he usually carried a few matches, and had several matches in the left trouser pocket at the time of examination. The matches were of the large "strike anywhere" variety, and had a strong sulphurous odor. He occasionally carried a box of Swedish safety matches, but had not associated his symptoms or the eruption with the presence of matches on his person.

Examination showed a well defined area of inflammation, the size of a large hand, on the anterior surface of the left thigh opposite the bottom of the left trouser pocket. The eruption was bright red, almost scarlet, with the exception of two oval areas about 1½ by 2 inches in size, where the lesions were confluent and dusky red, and showed a branny desquamation. The remaining area was studded with closely set, discrete, millet-seed sized, more or less conical papules, some of which were follicular. Some of the papules appeared polished and faceted; many were capped with tiny scales. These papules were set at irregular distances from one another, and some were closely grouped in a circinate arrangement. Toward the two oval areas of greater inflammatory intensity the papules tended to fuse and were deeply congested, though not exudative. At the periphery, the papules were scattered at wider intervals. The entire involved area was elevated, owing to inflammatory edema. There were a few excoriations, chiefly about the periphery of the patch.

Fig. 2 (Case 3).—Dermatitis of edematous and scaly type, due to matches.

Further contact with matches was avoided, the pocket was replaced by a new one, and a zinc oxid and calamine emulsion was applied locally, resulting in improvement within a few days and complete healing after ten days. Some pigmentation was present for several weeks. The dermatitis was later experimentally reproduced when matches of the same brand were carried in the pocket for one day.

CASE 2.—A bank clerk, aged 24, of light blonde type, seen, Jan. 5, 1920, had had an acute pruritic dermatitis for several weeks. The eruption began acutely with erythema, edema and exudation over the eyebrows, followed in about ten days by a papular and vesicular eruption, with later exudation, over the outer side of the left thigh, and then by a similar eruption on the dorsal surfaces and webs of the fingers of both hands.

This patient had been seen three years before, at which time he presented an irritant erythematovesicular and vesicopapular dermatitis on the lateral surfaces of the thighs, and a few similar lesions on the flexor surface of the left arm. The history indicated that the eruption had first appeared about eighteen months before on the lateral surface of the right thigh, and then over the right lower abdomen as a vesicular and vesicopustular dermatitis. This condition responded to symptomatic treatment, but showed occasional exacerbations of variable severity at intervals of several months, until his second visit, in January, 1920. Examination at this time showed a well defined oval patch of dermatitis, measuring about 4 by 6 inches, over the outer surface of the left thigh, consisting of closely set, flat, scale-topped red papules of pinpoint to pinhead size, scaling macules, infiltration, and some pigmentation. The webs and the dorsal surfaces of the fingers of the left hand, the forehead, the sides of the face, the region about the ears, and portions of the scalp showed an erythematosquamous dermatitis.

The upper and outer surface of the left thigh was usually the first site in which erythema developed during recurrent attacks, and this area was found to be in direct apposition to the left trouser pocket. The patient stated that he usually carried loose matches in this pocket. The dermatitis disappeared after avoiding contact with matches and under sedative local applications. He was seen again in December, 1922, for a seborrheic dermatitis of the face and scalp. At this time he stated definitely that pruritus and inflammation of the previously involved skin of the left thigh had always occurred shortly after he carried loose matches in the left trouser pocket, and that this eruption did not occur when matches were carried in a metal match-box.

CASE 3. — A real estate agent, aged 48, seen, Feb. 11, 1921, had had a localized inflammation of twenty-six days' duration, situated on the right thigh and associated with sensations of itching and burning. On the anterior surface of the right thigh there was a slightly raised, tender lesion, the size of an adult's palm, and of normal color except in six dime-sized and smaller areas with an urticaria-like, edematous infiltration. The latter lesions were scaly, red, and in part petechial, and had appeared gradually and increased slowly in size and in intensity of inflammation. There were no other cutaneous lesions, and the past medical history was entirely negative. The patient frequently carried loose matches of the "strike anywhere" variety in the right trouser pocket, the bottom of which was in direct approximation with the area of inflammation.

The dermatitis responded satisfactorily to local soothing medicaments and removal of the causative agent; and, except for a tendency to local irritability and congestion of the involved area when the skin was overheated, the eruption had disappeared when the patient was last seen, seven weeks after his first visit.

CASE 4.—An insurance agent, aged 35, was seen, Oct. 15, 1922, with a well defined, palm-sized patch of erythematopapular dermatitis situated over the right lower abdomen directly opposite the lower right vest pocket. The eruption was intensely inflammatory and pruritic, and was composed of pinhead-sized, rounded red papules on an erythematous and slightly exudative base. The first symptoms had appeared five days before, and since then the lesion had increased rapidly in size and in the intensity of the pruritus and inflammation. The pruritus was of an intensely burning or stinging type, described by the patient as similar to the sensation pro-

duced when the finger is cut with a sharp-edged piece of paper. He had been carrying loose matches of the "strike anywhere" variety in the right lower vest pocket for nine days before the first manifestation of the dermatitis. For at least two years previously he had been constantly carrying small packets of safety matches in this pocket, but was quite positive that he had never before carried loose matches. The eruption subsided quickly on removal of the matches and the application of a phenolated calamine emulsion, and there has been no recurrence to the present time.

CASE 5.—A musician, aged 29, who had been treated by me for scabies nine years before, was seen, April 24, 1923, with an inflammatory lesion on the abdomen of three weeks' duration. This was a fairly well defined, angular, approximately palm-sized area of dermatitis over the right lower abdomen, exactly opposite the right lower vest pocket. The patch was acutely inflammatory and desquamative, with irregular superficial fissuring insufficient to induce exudation, and without papule formation. The eruption was said to be less intense and less pruritic at the time of examination than it had been a short time before, and there had never been vesiculation or exudation. There were no lesions elsewhere. The patient said that he frequently and had recently carried loose matches in the pocket referred to, but carried none at the time of examination. He was advised to avoid contact with matches, and the dermatitis soon disappeared under local applications without recurrence to date.

CASE 6.—A factory manager, aged 42, married, developed an intensely itching and burning patch of dermatitis as large as the palm of the hand, on the anterior surface of the left thigh, and shortly afterward noticed tingling, itching, redness and swelling of the skin of the eyelids and malar regions. The inflammation subsided and recurred at irregular intervals, was exudative at times on the thigh, and within six weeks after the onset had appeared on the trunk and genitalia in erythematous patches, and on the webs and lateral surfaces of several fingers as an itching and burning erythema with swelling. The patient was treated under the diagnosis of nervous eczema without securing relief, and when first seen by me, June 27, 1919, presented the following symptoms: The eyelids and the skin of the cheeks and temporomalar regions were swollen, dusky red, exfoliating in small, thin flakes, and fissured on the lids and at the canthi. Covering the upper half of the anterior surface of the left thigh was an edematous, partly moist and partly crusted and scaling patch of dermatitis, with the inflammatory features most intense in its central portion and growing less toward the periphery of the patch. In the groins and on the genitalia were smaller, though less highly inflammatory, patches with crusts and scales; and blotchy erythematous patches were scattered over the sternal region, abdomen and flanks, with numerous discrete, chiefly follicular, inflammatory papules of pinhead size. The lateral surfaces and webs of the fingers were swollen, red and excoriated, as the result of rubbing. The patient complained bitterly of an intensely itching and burning sensation, referred especially to the lesions on the face, thigh, genitalia and hands, which was continuous and at times paroxysmal. The patient was in poor physical condition and extremely nervous, owing to loss of sleep and the torture occasioned by itching, and had required sedatives. He was a smoker, usually carried a box of safety matches in the left trouser pocket, and at the time of examination had a box of safety matches in the left pocket of his dressing gown in direct apposition with the patch of dermatitis that was more intensely inflammatory than any of the others. A diagnosis of match-box dermatitis and infectious eczematoid dermatitis was made, and under ordinary local applications and wet compresses for drainage of the crusted lesions the disorder subsided. Although he was warned not to carry matches on his person or to handle matches, the patient did so on several occasions during the next four months, and the dermatitis recurred promptly or exacerbated after each exposure. Itching was usually most intense on the face about the eyes, and the suffering during the paroxysms was extreme until relieved by hot compresses. The course of the disorder was prolonged by renewed exposures to the causative agent, until the diagnosis was confirmed six months later by Dr. Hermann Goldenberg of New York, who also reproduced the dermatitis experimentally on the abdomen by having the patient carry matches in his waistcoat pocket. The patient avoided further contact with matches or match-boxes, and has remained well since.

CASE 7.—An office executive, aged 65, had had an erythematosquamous dermatitis of several weeks' duration that had begun on the anterior surface of the left thigh and extended later to the left abdomen and flank, with erythema, infiltration and fissuring of the eyelids and neighboring skin, and severe itching and burning. The causative agent was not recognized at first, and the disorder continued in spite of treatment until he was placed in a hospital, where it was learned that he carried loose matches of the "strike anywhere" variety in the left pocket of his dressing gown, and had recently begun to carry loose matches in his trouser pockets. After avoidance of contact with matches, the dermatitis disappeared, but recurred several weeks later while the patient was in the East and had again grown careless in his use of matches. He was treated by a prominent physician with tonics and dietetic measures under the diagnosis of "nervous eczema" for several weeks, but recovered promptly when he avoided contact with matches and applied a calamine emulsion.

COMMENT

From the preceding pages it is seen that the recognition of this new variety of dermatitis followed soon after the general introduction of phosphorus sesquisulphid into the match industry, largely as a war-substitute measure abroad after about 1914,[17] and in consequence of the white phosphorus match law, effective in the United States after 1913. The etiologic relation of phosphorus sesquisulphid to match-box dermatitis has been shown experimentally and clinically; and the occurrence of dermatitis, as reported here, due to the "strike anywhere" type of match, which is now made with phosphorus sesquisulphid, is further evidence of the irritant properties sometimes exhibited by this chemical.

Experiments with safety match-boxes made by Frei [6] indicate the presence of a special susceptibility in those affected, for of 140 persons tested under usual conditions, only two developed a dermatitis. When the material from the striking surface of the boxes was rubbed into the skin, a larger number responded with the production of a dermatitis. The occurrence of widespread eruptions brings up the question of sensitization, but an increased susceptibility of other parts of the skin in those affected in one area was not observed by Frei. He made note, however, of the existence of a long continued, nonspecific, local hypersensitiveness, which I also have observed. Some of the elements of the generalized eruption sometimes seen in the exudative and crusted forms, as observed also in dermatitis of any origin, are those of an infectious eczematoid dermatitis (as in Case 6), and are not attributable to the primary cause of the dermatitis—a distinction with a bearing on treatment.

There are no essential differences in the clinical symptomatology of match-box and of match dermatitis, as both are caused by phosphorus sesquisulphid, which, when near or in contact with the skin, and when subjected to the special conditions of heat and moisture, develops irritant properties. Match-box dermatitis occurs perhaps more often on the thigh, and the onset of the eruption when due to matches appears to be more acute and intense, as though the irritant was more concentrated; but in other respects the clinical picture is the same. Irrespective of origin, it varies, however, in accordance with differences in the indi-

17. Stranz (Footnote 4).

vidual susceptibility, intensity and length of action of the irritant, and with the stage at which the condition comes under observation as it passes from a mild erythema through stages of papular eruption, edema of the tissues and exudation, to lichenification, or perhaps does not progress beyond any of these.

The variation in the clinical picture and the difficulties encountered in diagnosis are well illustrated by the reports of cases that had been mistaken for erysipelas, chronic eczema of various types, and by the erroneous diagnosis of lichen chronicus circumscriptus made and accepted in a group of cases exhibited before a German dermatologic congress in 1917.[18]

The important diagnostic features of match and match-box dermatitis are: location and localization of the eruption, repeated recurrences in the original areas, character of the subjective symptoms, and the prompt response to therapeutic measures when the causative agent is removed. The appearance in men of an originally erythematous or erythematopapular eruption of varying intensity in cutaneous areas in contact with pockets; its repeated recurrence at the same or at a similar site with the production of exudative, scaly, crusted and later lichenified lesions here and also on the face about the eyes and elsewhere, associated with itching, burning and painful sensations of striking intensity even in cases with only a mild inflammatory type of eruption; and in women and children the presence of a recurring blepharoconjunctivitis and recurring dermatitis or "eczema" on the face and hands with the clinical features just described, should arouse suspicion that the disorder is of external origin and may be due to contact with matches or match-boxes. Unless the causative agent is removed, in consequence either of its recognition or of a change in the personal habits of the patient, the dermatitis continues for years, and treatment fails to be of more than temporary benefit (Case 2).

The most essential part of treatment is strict avoidance of contact with matches or match-boxes, even for several months after the dermatitis has disappeared. Unless this is done, recurrence is probable (Cases 6 and 7). In addition, I advise that the pockets in which the matches or boxes were carried be replaced by new pockets. The dermatitis will then subside promptly under local applications of phenolated calamine emulsion, boric acid solution, or simple protective ointments. In exudative or crusted types, and especially in those associated with infectious eczematoid dermatitis, a 2 per cent. resorcin solution or a solution containing resorcin, boric acid and glycerin applied as wet compresses to secure continuous drainage, is of value. The use of sodium bicarbonate solution as a remedial agent has occurred to me since learning of its successful use as a preventative measure in the phosphorus sesquisulphid manufactories of France, but the opportunity to employ it has been lacking.

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ABSTRACT OF DISCUSSION

DR. HARRY G. IRVINE, Minneapolis: We frequently have to deal with things that seem of minor importance to us but which are of great importance to the patient. I think that we all stumble on cases in which we are unable to get at the etiology and have great difficulty in controlling the inflammation. Many of us have had the experience of having these patients go from one physician to another until some man was sharp enough to clear up the etiology and cure the condition. We are indebted to Dr. Foerster for calling this to our attention and for going into the chemistry of matches so thoroughly.

DR. HOWARD FOX, New York: I am familiar with a case of match-box dermatitis occurring in the person of my father, Dr. George Henry Fox, but would also like to record another similar eruption affecting a physician. This was an erythematosquamous dermatitis of two months' duration on the anterior surface of the left thigh. The disease did not respond well to any therapeutic measures, and we were at a loss as to its causation. The patient was in the habit of spending the week ends at his farm, where he wore a certain pair of khaki trousers. He had noticed that the eruption began to be worse a few hours after putting on these trousers, and that toward the end of the week it became better. The eruption finally appeared on the right thigh, and an investigation of the contents of the pockets of the trousers showed the presence of loose "birds' eye" matches in the right pocket, whereas he had formerly carried them in the left pocket. The matches were removed and the trousers thoroughly washed, after which the eruption promptly disappeared.

DR. JAMES HERBERT MITCHELL, Chicago: I have seen a number of cases of match-box dermatitis, but only one case of match dermatitis. Last summer, during the intensely humid weather, I saw a man with an eruption on his thigh, and at once thought of match-box dermatitis, but he carried a tin match-box with a corrugated bottom on which he scratched the matches. He carried in this old box a quantity of birds' eye matches. He had had the eruption for six weeks. It was, roughly, the size of the box but was slightly larger, owing to the fact that the box slid around in his pocket. We took the box away from him, and the dermatitis promptly cleared up.

DR. WILLIAM H. GUY, Pittsburgh: In view of the fact that match dermatitis is an exceedingly rare dermatosis, in spite the fact that matches are so universally carried, the observation of a single case may be of value. It occurred in a man who perspired freely. Perhaps one of the factors necessary in this eruption is the effect of perspiration acting as a solvent of the phosphorus, making it available as an irritant to the skin.

DR. FRED WISE, New York: Whenever this condition is brought to my mind, I feel as if I wanted to put a big sign in the clinic, and also in my private office, "Do not forget match-box dermatitis and match dermatitis." The disease is probably more common in rural districts and less so in urban districts. It is more common among men wearing workmen's clothing or khaki trousers, like fishermen and hunters—men whose clothes are liable to get wet—and I think this is where I got the idea of the comparative rarity of the disorder in the large cities.

DR. F. D. WEIDMAN, Philadelphia: I have seen one of these cases in a plumber who carried loose matches in his pocket. He wore overalls, and there was only the one layer of clothing between the matches and the skin, as he wore no underwear at all. At the time we saw him he had the ordinary birds' eye matches in his pocket, but he stated that he used various kinds of matches—whatever kind happened to be handy. Apparently, this disorder does not occur so frequently among those who wear conventional clothing as among those who wear the clothing of the workman or the hunter.

DR. OTTO H. FOERSTER, Milwaukee: The point brought out by Dr. Guy is important. I believe that the moisture from perspiration is a factor in producing the dermatitis. The cases are not confined to those who smoke tobacco. One case occurred in a man who was not a smoker but who carried matches for the convenience of his friends who smoked. He had had the match dermatitis for two years.

18. Loeb (Footnote 4).

Obstetric Patience.—Patience in obstetrics is next to asepsis, but it must be the active patience of close observation, not the passive patience of ignorance, allowing the mother to become totally exhausted or the baby in imminent peril of death before determining on a line of action.—J. A. Harrar: *Bull. Lying-In Hosp.* **12**:244 (Aug.) 1923.

A STUDY OF HILUM GLAND ENLARGEMENT IN A GROUP OF TUBERCULOUS CHILDREN *

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The diagnosis of tuberculosis in children is often a difficult one to make. Because of the fact that the infection is, in most instances, a glandular rather than a pulmonary one, there are usually few, if any, physical findings present. If the glands affected are those in the cervical region, the diagnosis is not so difficult. But in the majority of cases, the hilum glands are the ones involved, and in these it is often extremely hard to find any evidence, at least by physical examination, of any involvement. Aside from the general findings of undernourishment, poor muscle tone and posture of fatigue, which are often present, the only physical signs which point to hilum gland tuberculosis are those that are related to enlargement of these glands. D'Espine,[1] in 1889, called attention to a method of diagnosing hilum gland enlargement; since then there has been considerable written in regard to the various signs that may be used and their relative value in diagnosis. In 1904, Brouardel, in a communication made for d'Espine, enlarged on his method and described d'Espine's sign as a whispered sound heard after the spoken voice; he stated that normally it is not heard below the seventh cervical vertebra. He also stated that a bronchial quality to the respiration, or dulness on vertebral percussion below this level, has the same diagnostic value as the whispered sound heard after the spoken voice, but that they indicate more extensive enlargement. Rich,[2] in 1917, stated that the presence of the bronchial character of the whispered voice, or dulness on percussion below the level of the first dorsal vertebra, is indicative of enlarged hilum glands. Bloom,[3] in 1917, stated that he considered the whispered voice sign heard below the first dorsal vertebra of great diagnostic value in an enlargement of the hilum glands, but he said that a negative d'Espine sign does not eliminate the possibility of enlargement; a positive sign, however, always indicates enlarged glands. Metcalf,[4] in 1918, stated that the true d'Espine sign is of value, but he thinks that in older children the normal level of change is lower than the seventh cervical vertebra. He considers interscapular dulness a valuable sign. He thinks that the change in the respiratory sounds is of questionable value. Fleischner,[5] in 1922, stated that he considers d'Espine's sign of value in diagnosing enlargement of the hilum glands, but he agrees with Koranyi in feeling that the change in character of sound is indicative of hilum gland enlargement only if it occurs below the seventh cervical vertebra in young children, below the first dorsal in children 8 years of age, the second dorsal in those of 12, and below the third in children of 15 years. Fleischner considers interscapular dulness of value. O'Brien and Ames,[6] in 1922, stated that they consider d'Espine's sign of comparatively little value. Bruchmann,[7] in 1922, in examining a group of children for bronchial gland enlargement by physical and roentgen-ray examination, found forty-one children who had positive roentgen-ray findings. Ten of these forty-one children showed no physical signs of hilum enlargement. Fifty cases showed no roentgen-ray evidence of bronchial node enlargement, and in twenty-eight of these cases there were one or more physical signs of enlargement.

J. L. Morse,[8] in 1922, called attention to the error made by most observers in calling the change in whispered voice sound the d'Espine sign instead of the presence of a whispered voice heard after the spoken voice. Morse examined 118 patients between the ages of 2 and 14 years, and drew the following conclusions:

1. D'Espine's sign is not heard under normal conditions, and is often the earliest and only sign of abnormality.
2. The bronchial sound of the whispered or spoken voice is not normally heard below the seventh cervical vertebra.
3. Dulness on percussion is not normally heard below the seventh cervical vertebra.
4. The whispered voice sound is a more delicate test for bronchial enlargement than the spoken voice.
5. The change in respiratory sound has an intermediate value.
6. Interscapular dulness, when present, is indicative of considerable pathologic change.

The study that I made was on ninety children at the Lymanhurst School for tuberculous children. All of these had positive Pirquet reactions and were placed in the school because, besides the positive tuberculin reaction, they showed such evidences of active tuberculosis as undernourishment, enlargement of the hilum or cervical glands, or low-grade temperature. None of them showed evidence of a pulmonary tuberculosis. Roentgen-ray examinations were made of each one by Dr. Russell Morse, the roentgenologist of the school. The physical findings were then compared with the roentgen-ray findings.

In making the physical examinations of these children, I used the same signs as those which Dr. Morse used in his study.

1. *Interscapular dulness.* This term is self-explanatory, and simply means a percussion note over the area between the scapulae, which is duller than that which one would normally obtain. It also includes an increased sense of resistance on percussion.

2. *Whispered voice transmission over the spine.* This is the sign that is most often used, and it is often erroneously called d'Espine's sign. It consists of having the child whisper the words "one, two, three," and noting the level at which the character of the sounds changes from bronchial to vesicular. When the change takes place below the level of the seventh cervical vertebra, it is considered positive.

3. *Spoken voice transmission.* This sign is the same as the previous one except that the child speaks the words instead of whispering them.

* Read before the Section on Diseases of Children at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

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2. Rich, H. M.: The Diagnosis and Significance of Tuberculous Bronchial Glands, J. Michigan M. S. **16**: 7-9 (Jan.) 1917.
3. Bloom, C. J.: The d'Espine Sign, A Valuable Aid in the Diagnosis of Pulmonary and Tracheo-Bronchial Glandular Tuberculosis in Childhood, New Orleans M. & S. J. **69**: 748 (May) 1917.
4. Metcalf, W. B.: Diagnostic Signs of Tuberculosis of the Bronchial Glands, Illinois M. J. **34**: 252 (Nov.) 1918.
5. Fleischner, E. C.: Bronchial Lymphadenopathy, Nontuberculous, J. A. M. A. **79**: 175-180 (July 15) 1922.
6. O'Brien, F. W., and Ames, F. B.: Roentgen Ray and Tuberculosis in Infants and Children, Boston M. & S. J. **187**: 279 (Aug. 24) 1922.
7. Bruchmann, A.: Ueber Bronchialdrusen und Hilustuberkulose bei Kindern, besonders deren Diagnose, Norsk Mag. f. Lægevidensk., November, 1922; abstr. Jahrb. f. Kinderh. **51**, February, 1923.
8. Morse, J. L.: D'Espine's and Allied Signs of Childhood, Am. J. Dis. Child. **24**: 361-367 (Nov.) 1922.

4. *D'Espine's sign.* This is the sign described by d'Espine, and consists of a whispering sound heard after the spoken voice over the spinous processes. The words "one" or "oh" may be spoken; in this study the word "oh" was used. If heard below the level of the seventh cervical vertebra, it is considered positive.

5. *Change of breath sounds.* The level of the spine at which the character of the breath sounds changes from bronchial to vesicular is noted; when heard below the seventh cervical vertebra, it is considered to be indicative of hilum gland enlargement.

TABLE 1.—*Children Showing One or More Signs*

No. of Children	Per Cent.	No. of Signs
11	32	0
4	12	1
4	12	2
6	18	2
8	24	4
0	0	5
1	3	6

6. *Change in percussion note over the spinous processes.* The level at which the change takes place is noted; when heard below the level of the seventh cervical vertebra, it is considered abnormal.

This group of children was studied for two reasons: 1. It was thought that a relatively large percentage of them would have hilum gland enlargement and would therefore give an excellent opportunity for observing the different physical signs that we wished to study. There are, of course, many other conditions, such as measles, pertussis, influenza, chronic bronchitis and neoplasms which will cause enlargements of the hilum glands, and in these conditions the physical signs of the enlargement are the same as in tuberculosis. It was not with any idea that the signs investigated were diagnostic of tuberculous involvement of the hilum glands that this study was made, but because the children afforded an excellent opportunity to observe the value of physical diagnosis in hilum adenopathy. 2. Roentgen-ray study had been made on all of these children, and we could compare the physical and roentgen-ray findings. I wished to determine: (*a*) whether physical signs of hilum gland enlargement are always present when roentgen-ray examination shows enlargement; (*b*) whether physical signs of hilum gland may be present when the roentgen-ray shows that there is no enlargement; (*c*) the relative value of the different signs studied in indicating hilum gland enlargement; (*d*) whether the signs, as generally used, are of real clinical value.

I grouped the children into two classes:

1. Those showing no enlargement of the hilum glands by roentgen-ray or fluoroscopic examination. A considerable number of this group showed calcification of one or more glands, but no enlargement by roentgen-ray examination, and, since all of these children also gave positive tuberculin reactions, it was probable that some of them had enlarged glands which were hidden by the heart and large vessel shadows. In order to avoid error as much as possible, the children underwent fluoroscopic examination from different angles, and when enlargement was seen, they were placed in the group of those with positive roentgen-ray findings.

2. Those showing definite enlargement of the hilum glands by roentgen-ray or fluoroscopic examination. Many of these also showed the presence of calcification.

In the first group, namely, those with negative roentgen-ray findings, there were thirty-four children, and only eleven of these, or 32 per cent., showed no physical signs of glandular enlargement. In twenty-three children, or 68 per cent., there were one or more physical signs which indicated hilum gland enlargement.

In the four children showing one sign, in three cases the whispered voice sign was present, and in the other case the change in percussion note was below the seventh cervical vertebra. In the four children with two signs present, in one instance the whispered voice sign and the d'Espine sign were positive, and in the second, the whispered voice sound and the change in respiratory sounds were positive; in two cases both the whispered and spoken voice signs were positive.

In the twenty-three children who had one or more signs of hilum gland enlargement, twenty-one had the whispered voice sign; fifteen had the spoken voice sign; eleven, the change in respiratory sound; twelve, the change in percussion note; six, the d'Espine sign, and three had interscapular dulness.

In only once case was the change from bronchial to vesicular at a lower level in the spoken than in the whispered voice. In ten cases it was lower in the whispered than in the spoken voice, and in ten cases it was heard at the same level.

In the second group, namely, those who showed enlarged hilum glands by roentgen-ray or fluoroscopic examination, there were fifty-six cases. Forty-four, or 79 per cent., showed one or more physical signs of hilum enlargement.

In two of the five children who had only one positive physical sign of hilum adenopathy, interscapular dulness was the sign present, while in the other three cases, the whispered voice sign was present. Of the ten children with two signs present, two had the whispered voice and the d'Espine sign; one had the whispered voice and change in respiratory sounds; one had the whispered voice and interscapular dulness; two had the whispered and spoken voice signs; two had the whispered voice and change in percussion note, and two had the change in respiratory sound and change in percussion note.

Of the forty-four children who showed one or more positive signs, thirty-eight had the positive whispered voice sounds; twenty-six had the change in respiratory sound below the level of the seventh cervical vertebra; twenty-six had the positive spoken voice sound; twenty-three had the change in percussion note over the spinous processes below the seventh cervical vertebra; nineteen had a positive d'Espine sign, and sixteen had interscapular dulness.

TABLE 2.—*Children Showing One or More Signs*

No. of Children	Per Cent.	No. of Signs
12	21	0
5	9	1
10	18	2
7	12	3
9	16	4
11	19	5
2	3	6

In only two cases was the change from bronchial to vesicular heard at a lower level in the spoken than in the whispered voice; in twenty-four the whispered

change was heard at a lower level than the spoken, and in twelve the change was heard at the same level.

Taking the group of ninety children as a whole, we find that thirty-four showed no hilum gland enlargement, and fifty-six showed enlargement by roentgen-ray or fluoroscopic examination. Of the ninety children, sixty-seven, or 70 per cent., had one or more physical signs of hilum enlargement, while only fifty-six, or 60 per cent., showed enlargement by roentgen-ray examination. Of these sixty-seven children who had one or more signs present, fifty-nine had a positive whispered voice sign; forty-one, a positive spoken voice sign; thirty-seven, a positive change in respiratory sound; thirty-five, a positive percussion note over the spine; twenty-five, a positive d'Espine sign, and nineteen showed positive interscapular dulness. Of the thirty-four children in whom the roentgen-ray examination was negative for enlargement, twenty-three, or 68 per cent., showed physical signs of enlargement. There were twelve of the fifty-six children, or 21 per cent., who showed enlargement by the roentgen ray who gave no physical signs of enlargement.

COMMENT

From the study of these children, I am convinced that the methods of determining the presence or absence of enlarged hilum glands by physical examination are far from satisfactory. Sixty-eight per cent. of the cases showing no enlargement by roentgen-ray examination had one or more of the signs considered indicative of enlargement. Although in some of these cases enlarged glands may have been present which were hidden by the heart and large vessel shadows and could not be detected by either the roentgen ray or fluoroscope, nevertheless, the percentage of positive physical findings in children with negative roentgen-ray examination is so high that one must conclude that the presence of the physical signs used in this study is not always indicative of enlargement. Twenty-one per cent. of the fifty-six children who had positive roentgen-ray findings showed no physical signs indicating hilum gland enlargement. This is a much smaller percentage of error than the one discussed previously, but, nevertheless, it is large enough to indicate that negative physical findings do not absolutely rule out bronchial gland enlargement.

Of the signs that were studied, the whispered voice sign was most frequently present. I found that, of the six signs, it was the one in which the change in character of sound was most clearly defined, and it was the easiest one with which to determine the level of change. The spoken voice sign was more difficult to use because it is often hard to differentiate properly between the quality and the change in intensity of the sound. In only two cases was the spoken voice sign heard at a lower level than the whispered voice. The sign described by d'Espine was present in twenty-five cases. This is a difficult sign to get, and in no case was it present when the whispered voice sign was not also present, which would not indicate that it is an earlier or more accurate sign than that of the whispered voice.

The changes in the respiratory sound and in the percussion note over the spinous processes are rather difficult to obtain correctly, and were not found to be more accurate than the other signs. Interscapular dulness is the most difficult sign to obtain accurately. There is so much variation in the thickness of the chest wall in different children, and also such a wide variation in the normal percussion note that it is sometimes extremely difficult to determine accurately whether there is interscapular dulness present. I think that there is more possibility of error in determining the presence or absence of this sign than in the others. However, when it is present, it usually means that there is definite glandular enlargement. In this group of children, interscapular dulness was present in nineteen cases, and in sixteen of them, or 84 per cent., the roentgen-ray examination showed evidence of hilum gland enlargement.

Considering the signs as a whole, it would appear that they are far from being a satisfactory method of determining the presence or absence of hilum gland enlargement, and, although I do not think that they should be discarded entirely as one of the methods of determining bronchial adenopathy, nevertheless, the findings as determined by these signs should not be considered as final; and further investigation by means of the history, complete physical examination, roentgen-ray and laboratory tests should be made before one arrives at a final diagnosis.

CONCLUSIONS

1. The presence of one or more of the accepted physical signs of hilum gland enlargement is not absolutely indicative of actual enlargement.
2. The absence of the physical signs of hilum gland enlargement mentioned above does not rule out the possibility of enlargement.
3. The true d'Espine sign is not the earliest sign of hilum gland enlargement, and is not of greater value than the other signs studied.
4. Interscapular dulness is a difficult sign to obtain correctly; but, when definitely present, it is the most accurate physical sign of bronchial adenopathy.
5. The whispered voice sign is the sign most frequently present, and is the easiest to obtain accurately, but it is often found when there is no enlargement present.
6. The spoken voice sound is the sign next most frequently found, but it is more difficult to obtain correctly.
7. The level of the seventh cervical vertebra, which is the one usually used, is apparently too high for the limit of normalcy in examining for hilum gland enlargement in children of school age.
8. The methods used in physical examinations for determining hilum gland enlargement are unsatisfactory.

ABSTRACT OF DISCUSSION

DR. H. F. HELMHOLZ, Rochester, Minn.: In regard to the whispered voice sign: The level of the cervical vertebra, as given by Dr. Anderson, at which the sign is positive, seems to me entirely too high. Only when we get the whispered voice sign, tracheal in character, at the fourth dorsal vertebra, or below, can we say that we are dealing definitely with an enlargement of the glands at the hilum. A second point that I should like to make in explanation of the differences between the physical and the roentgen-ray findings is that early in the tuberculous process, the glands are large. With the healing process and the calcification setting in, the glands shrink, yet show up very distinctly in the roentgenogram because of the calcification. I think, as Dr. Anderson has outlined in his paper, that these calcified nodules outside the hilum shadow are very definite evidence of healing which may be dissociated from any enlargement of the bronchial

glands. I agree with him absolutely in the difficulty of the diagnosis of this condition, and would emphasize that the whispered voice sign at the level of the fourth dorsal vertebra and below is probably the most important sign in the diagnosis of hilum infiltration.

Dr. F. P. Gengenbach, Denver: I have placed more reliance on the true d'Espine sign than on the whispered voice sign, but I have come to the conclusion that the seventh cervical is too high, while the fourth dorsal is too low, and that, when we get the sign below the first dorsal, we should certainly have strong suspicions of a hilum enlargement. My experience also has been that the roentgenologist says he finds hilum enlargement more often than I do.

Dr. Edward Dyer Anderson, Minneapolis: I chose the seventh cervical verterbra as the normal limit not because I felt that it was necessarily the correct one, but because, in going over the literature, I find that most observers take that as the normal limit. My object in this study was to determine whether signs as usually employed were accurate, and my conclusion is that they are not.

THE LABYRINTHINE TESTS IN CEREBELLAR DIAGNOSIS *

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Bárány's labyrinthine studies, initiated in the years 1907-1909, and followed up in this country more particularly by the work of Jones and Fisher, have stimulated our interest in the borderland that lies between the fields of neurology and otology. They have led to a more careful analysis of vertigo and nystagmus, symptoms common to the two fields; and in past pointing, have introduced an additional method of studying cerebellar disturbances.

The field of usefulness for the labyrinthine tests is clearly defined by the anatomic limits of the labyrinthine pathways, and can be deduced from those limits. It includes: (1) the labyrinth and the vestibular nerves; (2) the brain stem, especially the upper medulla and pons; (3) the cerebellum—the end organ for the labyrinthine impulses, and (4) indirectly, may give some information regarding lesions of the cerebrum itself.

In a general way, study of the labyrinth and the vestibular nerve, and their intracranial pathways, depends on the response to labyrinthine stimulation. The stimulus consists of turning in a turning chair, or injecting cold or hot water into the ear. The response takes the form of nystagmus and vertigo. Blocking at any point will interfere with the integrity of these responses.

Study of the cerebellum is likewise dependent on response to labyrinthine stimulation. The stimulus is the same, but the response is different; instead of nystagmus, we test past pointing and falling. This depends on the fundamental fact of cerebellar control of extremity and truncal movements. Past pointing as a symptom is often criticized on the basis that the cerebellum is not the only control factor. It is stated that the cerebrum plays an important rôle in the initiation of voluntary impulses, and in the conscious correction and compensation of faults; that many normal persons fail to touch accurately and show varying grades of spontaneous past pointing, and that this past pointing varies from time to time. These criticisms are just. But in spite of this, a study of past pointing, both spontaneous and reactive, can be of great service. When we find spontaneous past pointing of one arm in one direction, with an inability to produce reactive past pointing in the opposite direction; or even when, without spontaneous past pointing, we cannot produce reactive past pointing of one arm in one direction, we have strong presumptive evidence of involvement of a cerebellar hemisphere; and what is true of past pointing in relation to the lobes is true of falling in relation to the vermis. In our interpretations of these findings, we must always remember that interference with reactions may result not only from direct involvement of the structure concerned, but also indirectly through pressure.

We have stated that failure of reactive past pointing of one arm in one direction is direct evidence of cerebellar disease. Conversely, when we can produce normal reactive past pointing and falling in all directions, we have strong presumptive evidence that the cerebellum is intact. There are exceptions to this, as will be seen in one of the case reports; nevertheless, it is a helpful point in the differential diagnosis between supratentorial and cerebellar lesions. There are certain other factors of value in making this differentiation. Bárány, and quite recently Karlefors, have laid stress on crossed past pointing as evidence suggestive of supratentorial involvement. Lyons has recently pointed out that supratentorial lesions frequently produce exaggeration of all reactive responses (vertigo, nystagmus and past pointing); and so, in recognizing supratentorial lesions, and excluding the cerebellum, we have three points of value given by the labyrinthine tests: (1) intact cerebellar responses; (2) exaggerated reactive phenomena, and (3) crossed past pointing.

As illustrating the general subject of the relation of the labyrinthine tests to cerebellar diagnosis, we report four cases: (1) cerebellar tumor, with typical responses; (2) frontal lobe tumor, with normal cerebellar responses; (3) cerebellar tumor, with normal cerebellar responses, and (4) cerebellopontile angle tumor.

Case 1.—*Cerebellar disease, with confirmatory labyrinthine responses. History.*—I. O., a boy, aged 10, seen in March, 1921, complained of headache and vomiting. There had been sudden onset, four weeks before, with an attack of dizziness, followed by nausea, vomiting and headache. The attack lasted twenty-four hours. From this time on there were similar spells, alternating with free intervals, the spells gradually becoming longer and the free intervals shorter. The spells came on suddenly; he complained of dizziness and headache; the pulse and respiration slowed down; there was cyanosis, and he fell over, partly or wholly unconscious.

Examination.—The positive findings were: intense headache; stiff neck; forced position of the head; spontaneous nystagmus to the right; impairment of the associated eye movements to the right, and weakness of the lower facial muscles on the right The strength and the reflexes of the arms were normal; there was ataxia of both sides, a little more on the right; adiadokokinesis was present on the right. The strength and the reflexes of the legs were normal; their tonus was good; there was gross ataxia on both sides, equal on the two sides. The gait was typically cerebellar, with extreme instability, and swerving from side to side, with a tendency to fall to the right; there was a tendency also to fall backward and forward, suggesting Babinski's cerebellar asynergy. Sensation, both cutaneous and deep, was normal. There was bilateral choked disk, more marked on the right.

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Labyrinthine tests revealed: A. Spontaneous phenomena: (1) nystagmus up and to the left; (2) swaying, with tendency to fall to the right; (3) past pointing with right arm inward. B. Induced phenomena: 1. Nystagmus: After turning, normal nystagmus to right and left. After douching, abnormal responses. Douching the right ear (cold) after one minute gave a combination of horizontal nystagmus to the left and nystagmus upward and to the left. Douching the left ear (cold) after one minute gave horizontal nystagmus to the right. No note was made about vertigo. 2. Falling reactions: In spite of a tendency to fall to the right, the falling reactions following turning were normal in all directions. 3. Past pointing: Left arm, normal. Right arm: It was impossible to force the right arm, which showed a spontaneous fault inward, to past point outward.

Deductions from the labyrinthine tests were: 1. A lesion of the right lobe of the cerebellum at the area controlling the outward movements of the arm at the shoulder. According to Bárány, this center lies at the lateral angle of the right hemisphere, in the superior and inferior semilunar lobules. 2. General pressure on the pons and medulla (abnormal nystagmus after douching). 3. A relatively intact vermis (normal reactive falling in all directions in spite of spontaneous falling). 4. Left lobe of the cerebellum intact (normal past pointing with the left arm).

Deductions from the neurologic examination were: A tumor of the cerebellum, involving the right lobe and probably the vermis.

Operation by Dr. A. E. Rockey, consisting of a bilateral cerebellar decompression, showed that the right lobe of the cerebellum was the seat of an extensive glioma with cyst formation. The vermis was apparently free.

CASE 2.—*Frontal lobe tumor, with normal cerebellar responses. History.*—E. S., a boy, aged 15, seen in December, 1922, because of loss of memory, had been a studious, intelligent chap, active and interested in athletics. In June, 1922, he began to show loss of memory, inability to concentrate, lack of interest in work and play, a gradually increasing dulness, and lack of initiative. His grades became so poor that he had to be taken out of school. Sometime after the onset, he began to have disturbance of equilibrium. If sitting unsupported, he would tend to fall to one side or the other. In walking, he would stagger; several times he had fallen in attempting to get up steps. At no time had there been headaches, nausea, vomiting or eye symptoms.

Examination.—The patient showed marked dulness and apathy. If left alone, he sat quietly, doing nothing and saying nothing. When addressed, he responded slowly, but to the point, and carried out simple instructions. Sitting or standing, there was a constant tendency to sag slowly to the right. In walking, there was a tendency to swing off to the right. If his attention was called to this a number of times, he corrected it and even overcorrected, sagging or moving to the left. In addition, there was a slight ataxia of the left arm and left leg; an increase in all the tendon reflexes on the left, left sided ankle clonus, and a positive Babinski reflex. There were no signs of increased intracranial pressure.

Labyrinthine tests revealed: 1. Normal coming through of all responses, both those from the brain stem and those from the cerebellum. 2. A tendency to exaggeration of responses. Vertigo after turning was very marked, and after turning to the right was accompanied by vomiting. 3. Reactive past pointing. Normal reactions followed by crossed past pointing.

Deductions from the labyrinthine examination were: The cerebellum and brain stem were intact. The exaggeration of responses and crossed past pointing suggested a supratentorial lesion.

Deductions from the history and the physical examination were: A tumor of the right frontal lobe. Owing to the truncal ataxia, a cerebellar localization had to be considered.

Operation, by Dr. T. M. Joyce, at which the right frontal lobe was exposed, revealed an extensive subcortical glioma. Surgical removal was impossible.

CASE 3.—*Cerebellar tumor, with normal past pointing. History.*—J. W. C., a man, aged 39, single, seen in April, 1920, had pain in the right side of the head; uncertainty in gait; dizziness, nausea and vomiting. The present illness began two months before. While walking, he suddenly collapsed and fell. On coming to, he vomited. A few days later he developed pains in the right side of the head and neck, at times of great intensity. Since the onset, there had been unsteadiness of gait. During the last three weeks there had been repeated vomiting spells, at times projectile.

Examination.—There was vertical nystagmus upward on looking up. The strength of the arms was good. Muscle tone was normal. The deep reflexes were active and equal. There were no ataxia, dysmetria or asynergy. Rapidly repeated movements were carried out well, with perhaps a slight lagging on the right. There was no past pointing with either arm, in either the vertical or the horizontal direction. The strength of the legs was good. The deep reflexes were active. There was slight hypertonicity, and a suggestion of ankle clonus on the right. There was no ataxia in the heel to knee test. Romberg's sign was definitely positive. There were bilateral choked disks, of moderate grade, equal on the two sides.

May 12, there were headache and vomiting as before. In addition to the previous symptoms, the patient had (1) a diplopia of a few days' duration, and (2) paresthesia about the right ear and right side of the tongue. Examination on that day showed loss of the right corneal reflex, and hypesthesia in the distribution of the mandibular branch of the fifth nerve. (During this examination the patient again had an intense headache, the face became flushed, the pulse dropped to 44, and there was a marked pulling of the eyes to the right, with sharp recovering twitches to the left. The duration of the attack was five minutes. Following the attack there developed a spontaneous vertical nystagmus upward.)

From this time on the picture changed somewhat, owing to the rapid extension of a bilateral pulmonary tuberculosis, which terminated fatally in the course of a few weeks. During this period the symptoms of intracranial disease became less rather than more prominent.

Labyrinthine examination was made, early in April. The tests showed a complete absence of responses from the left verticals (douching the left ear with the head 30 degrees forward). The left horizontals, and the right verticals and horizontals showed normal responses.

Tests for cerebellar function gave normal findings. Either arm could be made to past point either to the left or to the right, and falling could be induced in either direction.

The diagnosis on clinical grounds was: (1) bilateral pulmonary tuberculosis; (2) tumor (or tubercle) involving either the right lobe of the cerebellum or the right side of the pons.

Deductions from the labyrinthine tests were: (*a*) a lesion of the left side of the pons, and (*b*) normal cerebellum.

Necropsy.—This showed an extensive glioma of the right lobe of the cerebellum, presenting superficially at the anterolateral margin of the right superior semilunar lobe. On section, the gliomatous material invaded the entire subcortical zone, and extended inward far enough to involve at least part of the dentate nucleus. Except at the zone of surface presentation there was no destruction of the cortex. There were no areas of softening within the substance of the tumor.

Here was an extensive cerebellar lesion, involving almost the whole of one lobe with almost no disturbance of cerebellar function. The only focal sign directly referable to the loss of synergic control was a slight lagging of the right hand on rapidly repeated movements (adiadokokinesis), so slight as to be qualified by the word "perhaps." There were other symptoms suggestive of cerebellar involvement, but these were all neighborhood symptoms, and not strictly referable to loss of cerebellar function.

The same is to be said of the labyrinthine tests. Past pointing of the right arm, both inward and outward, could readily be produced either by turning or by douching. It is true that only the arm was tested (not the leg), and only one type of arm movement (the shoulder from above). Bárány has attempted to differentiate, within the cerebellar hemisphere, specialized

centers for the movements of the different joints, in the different planes. But in view of the extent of the lesion found at necropsy, centers for all movements, if such exist, must have been the seat of tumor invasion. And further, the region at which the tumor actually presented at the surface corresponds to Bárány's center for the movement of the right arm outward—which movement was tested and found normal.

In this case, therefore, neither the labyrinthine tests nor the clinical examination gave us specific evidence of cerebellar involvement. This does not justify us in discarding induced past pointing as a specific test for cerebellar lesions, any more than it justifies us in discarding dysmetria and asynergia for the same purpose. The case warns us, however, that we must not be too positive in excluding cerebellar involvement on the basis of normal past pointing reactions.

On gross inspection of the tumor, it seemed difficult to reconcile the clinical and labyrinthine findings with the extensive pathologic changes. We know, however, that gliomas can grow to considerable size without much actual destruction of the invaded tissues. This was borne out in our case. Dr. William F. Allen, professor of anatomy at the University of Oregon Medical School, made complete serial sections of the cerebellum. Marchi's stain was used. With the exception of an occasional scattered fiber, no evidence of degeneration was found. This accounts for the fact that the functions of the cerebellum were normal, and that the signs that the tumor gave were signs of general pressure, and signs of local pressure on the right side of the pons.

It was stated above that the deduction from the labyrinthine test (absence of responses from the left verticals) was a lesion of the left side of the pons. With the same data before us now, this mistake would not be made. We are more familiar now than we were then with the fact that either a general increase of intracranial pressure or local pressure on the pons by a neighboring tumor can abolish or impair the reactions from one or more canals, and that such interference with responses does not have a specific localizing value. We will return to this point later.

CASE 4.—*Cerebellopontile angle tumor, with confirmatory labyrinthine findings. History.*—R. L. S., a man, aged 48, seen in September, 1921, had first noted the symptoms in 1918. They progressed gradually up to the time of the operation three years later. From the patient's standpoint, the most disturbing symptom was a mental impairment—a loss of keenness, efficiency and ability to concentrate. Speech was impaired, and writing difficult. From the onset he complained of dizziness and staggering, especially in the dark. The right leg gave more trouble than the left, and there was a tendency to walk to the right. There was also some clumsiness in the use of both hands, especially the right. Impairment of hearing was also present from the start. It was bilateral, but more marked on the right. As the trouble progressed, hearing in the right ear was completely lost. Headache, though present throughout, was never a prominent symptom. At no stage was there nausea or vomiting. Blurring of vision was present on and off from the time of onset.

Examination.—There was instability of station and gait, with a tendency to "droop to the right" while sitting, and to walk to the right. There was spontaneous rotary nystagmus to the left; nystagmus in all directions of gaze, including vertical upward on looking upward; slight divergent squint, and some blurring vision. The corneal reflex was absent on the right. There were hypesthesia and hypalgesia in the entire distribution of the right fifth nerve. The motor division on the right was a little weak. There was a tic-like contraction of the right eyelid. The right ear was totally deaf. There was marked dysarthria. The right arm showed a little ataxia, and a slight volitional tremor. The right knee jerk was less active than the left. The right Achilles jerk was active; the left was not obtained. There was no Babinski reflex and no clonus. There was marked ataxia of the right leg, and slight ataxia of the left leg. Repeated examinations of the eyegrounds since 1918 were negative. It was not until late in 1921 that a bilateral choked disk developed.

Ear and labyrinthine examinations revealed total deafness of the right ear. Spontaneous phenomena were: (1) rotatory nystagmus to the left on looking ahead; (2) nystagmus in all directions of gaze, including diagonal up and to left on looking up, and rotatory to right on looking down; (3) tendency to fall to the right, and (4) past pointing inward with both arms. Induced phenomena were: 1. Nystagmus: The right side showed no responses of any kind, either from the verticals or from the horizontals. The left side showed abnormal responses both from the verticals and from the horizontals. Stimulating the verticals (douching with the head 30 degrees forward) produced, after three minutes, a cessation of the spontaneous rotatory nystagmus to the left, and after five minutes an occasional nystactic twitch diagonally up and to the right, more persistent and larger than the foregoing. 2. Past pointing: Reactive past pointing to the right and to the left was obtained with both arms, though with some difficulty. The same was true for reactive falling.

The clinical diagnosis was cerebellopontile angle tumor on the right. Because of the peculiar mental manifestations, the bilaterality of the physical signs, and the absence of any evidence of intracranial pressure increase, the case was long considered one of multiple sclerosis. It was not until hearing in the right ear was lost, accompanied by involvement of the right fifth and by choked disk, that the true condition was recognized.

Deductions from the labyrinthine examination were: The first test, made in 1919, showed impaired hearing in both ears, and impaired labyrinthine responses on both sides, more marked on the right. On this basis a diagnosis of toxic labyrinthitis was made. The examination in 1921 showed complete deafness on the right; complete loss of all labyrinthine responses on the right; perverted nystagmus on stimulation of the left canals, both vertical and horizontal; and no evidence of cerebellar disease.

The diagnosis was cerebellopontile angle tumor on the right.

The labyrinthine picture does not conform strictly to the angle syndrome described a number of years ago by Dr. Isaac Jones. His typical syndrome included loss of all responses from the homolateral eighth nerve, with loss of responses from the contralateral verticals. In our case we have a slight but perverted response from the contralateral vertical, and also a perverted response from the contralateral horizontal. In a recent discussion of this subject, Dr. H. T. Lillie stated that of six acoustic tumors examined, only one showed the typical Jones syndrome. We must consider the Jones syndrome merely as the type of what may be found in this group of cases. An angle tumor that has reached any size will do two things: (1) produce sufficient pressure on the homolateral cochlear and vestibular nerves greatly to impair or wholly destroy their functions; this means gross impairment or total loss of responses from these nerves, and (2) cause sufficient pressure on the pons to interfere with the responses from the contralateral labyrinth. The vertical may be completely gone, as in the Jones syndrome, or its responses may be reduced or perverted, or, as in the case described above, both vertical and horizontal may respond with a perverted nystagmus.

COMMENT

We find, then, from a study of our case reports, that in interpreting the results of labyrinthine tests we must differentiate between direct and indirect symptoms.

Taking as the simplest example a cerebellopontile angle tumor, its direct symptoms will be those of pressure and blocking of the eighth nerve. This means homolateral deafness and loss of labyrinthine response. Indirect symptoms will result from pressure on the pons and on the cerebellum. By pressing on the pons, it will interfere with the conduction pathways for the contralateral vertical or horizontal canals or both; and the result of this pressure will be lost, impaired or perverted responses from these canals. By pressing on the cerebellum it may produce spontaneous past pointing and falling, but unless the pressure is very great the reactive phenomena should be intact. It is interesting to note that in his earliest descriptions of cerebellopontile angle tumors, Bárány called attention to these facts. He included in his description spontaneous nystagmus as a symptom of brain stem pressure, and spontaneous past pointing without loss of the contralateral reactive movement, as evidence of pressure on the cerebellum.

Analyzing the labyrinthine symptoms of a cerebellar tumor, we find the same division into direct and indirect symptoms. As a direct symptom we have a loss of reactive past pointing of the homolateral extremity in one direction or another. As an indirect symptom, we have pressure on the pons. The pressure may be exerted on one or both sides; and, depending on its location and degree, it will cause loss, impairment or perversion of responses from one or more canals. It is of interest in this connection that the vertical responses are much more likely to suffer than the horizontals. This has been repeatedly demonstrated by many who have followed the Jones technic for the differentiation of the two sets of canals; i. e., douching with the head 30 degrees forward for the verticals, and then tipping the head back for the horizontals. Whether or not we accept Jones' views on neuraxial differentiation, and whether or not we agree with his tentative localization of those pathways, it is a matter of clinical experience that pressure on the pons is very apt to interfere with the responses from one or both verticals, leaving the responses from the horizontals intact.

So much for the symptoms of infratentorial tumors. Supratentorial tumors, on the other hand, can produce only indirect symptoms. As stated before, Lyons has recently called attention to the fact that supratentorial tumors frequently produce exaggeration of all reactive manifestations, both those from the pons and those from the cerebellum. Nystagmus, vertigo and past pointing may all be increased. But this does not always happen; and in other cases (the factors at play are not clearly understood), instead of getting the exaggeration which Lyons describes, we may get impaired responses from the pons or cerebellum or both. In case of the pons, this is evidenced most commonly by impaired response from one or both verticals. In case of the cerebellum, we may get spontaneous past pointing of one arm in one direction; but, the cerebellum being intact, reactive past pointing of that arm in the opposite direction will be retained. Mention has already been made of the phenomenon described by Bárány and confirmed by Karlefors as occurring in cases of supratentorial tumor; namely, an impairment of outward past pointing (or it may be an exaggeration of inward past pointing). This may be either unilateral or bilateral; when bilateral, it may lead to crossed past pointing, as we have described it in our case of frontal lobe tumor.

And so we may make up the following general picture of what we may expect from our labyrinthine tests:

A. Supratentorial Tumors:
   1. Exaggeration of responses from brain stem (nystagmus) or cerebellum (past pointing), or both, or
   2. Diminished responses from the brain stem (impaired or perverted nystagmus), especially from the verticals.
   3. Presence of all responses from the cerebellum.
   4. Diminution of certain of these cerebellar responses, especially of outward past pointing. This may lead to the phenomenon of crossed past pointing, either spontaneous or following stimulation.

B. Cerebellar Tumors:
   1. Spontaneous past pointing of one arm in one direction, with loss of reactive past pointing in the opposite direction, or loss of reactive past pointing of one arm in one direction, without spontaneous fault.
   2. Pressure symptoms in the brain stem. Lost, impaired or perverted responses, especially from the verticals, less often from the horizontals as well.

C. Cerebellopontile Angle Tumor:
   1. Loss of responses (or gross impairment) from the cochlear and vestibular nerve on the affected side.
   2. Pressure symptoms on the brain stem. Lost, impaired or perverted responses, especially from the verticals, less often from the horizontals.
   3. Pressure symptoms on the cerebellum (homologous hemisphere) with impairment of past pointing in the homolateral arm, but retention of the reactive past pointing.

In considering these syndromes, we are not dealing with pathognomonic signs. In a few instances, it is possible to make a localizing diagnosis from them alone, but for the most part they are not specific. Local or general pressure produces effects which are confusing unless their interpretation is understood. But if we do interpret them properly, the labyrinthine tests can offer valuable aid in clinical diagnosis, and are deserving of a definite place in the field of neurology.

ABSTRACT OF DISCUSSION

DR. I. LEON MEYERS, Los Angeles: In endeavoring to estimate correctly the value of the labyrinthine test in cerebellar lesions we are confronted with the difficulty that such lesions generally encroach on the cerebellar as well as the vestibular structures. Generally, a tumor or abscess in that region exerts its effect on the cerebellum, the brain stem and even the eighth nerve itself. It should be borne in mind that in order to adopt Bárány's labyrinthine tests for cerebellar lesions we must assume that the cerebellum is the central organ for the direction of movement in the sense of inward or outward tonus in the limbs. The difficulty of estimating phenomena that may be produced either by a lesion of the cerebellum or by abnormal sensations of direction through the labyrinthine mechanism is therefore clear. I have tried these tests a number of times. The results in my cases were not definite enough to be of diagnostic value, probably because of the large size of the lesions.

Not Every Doctor a Surgeon.—It is an unfortunate fact that there are physicians in considerable numbers who have never received the requisite training, but who are trying to do surgery. To many of our people a hospital is a hospital and any doctor is a surgeon. A way must be found to protect these people. There should be some recognized mark of the competent surgeon and the trustees of all hospitals could then forbid others to operate in their institutions. The private commercial hospital would probably require state regulation.—F. A. Washburn, *Mod. Hosp.* **20**:164 (Feb.) 1923.

TREATMENT OF THE PATHOLOGICALLY FLEXED KNEE *

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The pathologically flexed knee, unless firmly ankylosed, is a weak knee, and, if the deforming process continues inflammatory, is usually painful in walking. The flexion shortens the functional length of the limb and increases the limp. All of these are undesirable complications and should be avoided or corrected.

The extended knee, even in complete paralysis of the limb, will support the body weight, standing or walking; in arthritis it reduces the movement, and thus the pain, to a minimum; and the extended position gives the greatest length of the limb with the least amount of limping. These are the conditions of comfort, and should be secured and maintained.

Neglect of these simple principles is so common and the results are so distressing that one feels fully justified in emphasizing their consideration.

While the instability of the flexed knee in poliomyelitis furnishes a constant plea for more general dissemination of the knowledge of measures to insure extension, yet the impelling factor in the preparation of this paper has been a series of chronically inflamed knees, mostly in adults, which by reason of their flexed and painful condition had practically invalided their owners. Walking was frequently impossible, or, in the case of single knees, possible only with the aid of crutches. These patients had the air of hopeless cripples. They had not been without medical attention; in fact, many of them could relate exhaustive histories of injections of vaccines and serums, multiple operations for possible focal infections, divers forms of physiotherapy, and the use of various braces and appliances in the vain effort to relieve their distress, while the necessary correction of the deformity was consistently being neglected. This is not said in disparagement of the various therapeutic measures used, if they were indicated, but to emphasize the futility of all general measures when there is neglect of the necessary local one.

It is the constant recurrence of just such instances of futile general treatment with the persistent neglect of local essentials that, as said before, has impelled the preparation of this paper.

TYPES OF CASES

CASE 1.—Mrs. H., aged 61, who up to four years ago had enjoyed good health and had taken an active part in the duties of a farmer's wife, suffered from a severe infection of the urinary tract, which involved the bladder and ureters. During this time the left knee became swollen, painful and flexed, and was in this condition when I examined it. The flexion was 90 degrees. The knee allowed a few degrees of movement, but became painful on attempts to pass these very narrow limits. The patient had walked with crutches during the last four years, and had received local and general treatment for the arthritis; but no one had made proper efforts to straighten the knee. The roentgenogram showed diminished density, but no marked changes in the contours of the bones. A single general anesthetic sufficed, under the gradual application of force, entirely to straighten the knee, which was then placed in a plaster cast. Motion was not promised. The only thing promised was an attempt to straighten the limb, which, if successful, would increase the stability of the limb, diminish the pain and dispense with the crutch. All these were accomplished. The reaction was slight, the pain from the trauma continuing only three or four days. The patient went home in two weeks with the leg straight and wearing a cast. A month later this cast was replaced with a removable one to protect the joint against injury, and to prevent a return of the deformity. At this time the patient had a few degrees of movement in the knee, was free from spontaneous pain, and could walk a little without crutches, but preferred the crutches for safety.

CASE 2.—Mrs D., in the hospital ward, had not walked for more than eight years on account of ostearthritis of both knees, with flexion, pain and disability. The patient had had the ileum, cecum, ascending colon and part of the transverse colon removed and the gallbladder drained, besides a panhysterectomy, appendectomy and multiple and frequent operations on the nose, throat and sinuses. A series of casts corrected the knees, and the patient was able to walk alone and without casts for short distances before she left the hospital. Letters received after she left the hospital told of continuing improvement, so that she went shopping without any artificial aids to the legs.

CASE 3.—Mrs. G., aged 57, came to the office, some years ago, with flexed knees and barely able to walk with the aid of two crutches. There was some movement with coarse crepitus in the knees, which were not very painful. Roentgenograms showed extensive erosion of the tibial and femoral articular surfaces. These knees were straightened under one anesthesia, and put in casts. The patient suffered severe pain for several days after the correction. Removable casts were later applied; now, eleven years after, at infrequent intervals, she walks into the office with straight limbs and actively flexing joints to complain of occasional pains in the knees. The knees flex 90 degrees, which is an unusual result.

CASE 4.—C., a man, aged 64, was confined to his bed in the ward with the left knee flexed to a right angle and with a greatly swollen foot. He could not walk; his method of progress was on his hands and knees, and had been so for months. The internist in charge of the case assured me there was no contraindication to a general anesthetic, and this was given, the knee completely straightened and a cast applied. In twenty-four hours the edema had almost completely left the foot, a striking and unique experience. With a series of casts he was later able to walk out of the hospital with his leg straight, motion limited and pain relieved.

NEED OF CORRECTING BENT KNEES

It is a familiar experience for an acute general arthritis in the medical wards to run its usual course with all joints clearing up except one, the knee often being the refractory member. Its recovery is awaited and expected, but the convalescence is delayed by weeks and months because this flexed and painful joint cannot help itself to recovery. This joint needs just the help we advocate; it must be straightened either slowly with apparatus or at once under anesthesia.

The temperament of the patient or of the physician will often decide which method to use.

No attempt will be made here to record all of the many other types and conditions of pathologically bent knees, but a very common deformity is the one following acute osteomyelitis of the bones forming this joint. Either by nature or by surgical art, osteomyelitis of these bones not infrequently involves this joint, leaving it in a flexed, weak and painful condition. We have the same duty here as in the previous type. Usually the ankylosis is not bony, and a series of stretchings will straighten it out with more or less limitation of movements, but straight, effective and painless.

The tuberculous joint perhaps receives the best treatment in proportion to the number of cases handled, as its special care has been generally emphasized. Here,

* Read before the Section on Orthopedic Surgery at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

however, the admonition to keep the knee entirely straight is just as necessary as in the other classes.

Mention may be made of the neuropathically flexed knee, which is best steadied in the extended position, as is also the flail knee of poliomyelitis or from other causes.

The traumatically flexed knee deserves equally good treatment.

TREATMENT

The method of obtaining the results demanded in these flexed joints necessarily varies according to circumstances. Prevention of the deformity would seem to be the natural course to follow, and in the hands of those familiar with the sequence of pathologic changes in the joints is the one effectively pursued. The use of fixative measures in complete extension for practically all acute and chronic inflammatory affections of the knee joints is now too well established to need further comment. An additional point in favor of the extended knee is the clinical observation that the patella much less frequently becomes ankylosed in this position. However, many bent knees exist and need correction. This correction is accomplished by means best suited to the individual case.

Some of the severe deformities, with 90 degrees or more of flexion and a tendency to subluxation, may defy our skill or tax our ingenuity to the utmost to secure a good result. The general condition of the patient may preclude any attempts at correction in difficult cases, and there will always be doubtful cases requiring our best surgical judgment whether to intervene or leave alone. Yet, the number of cases suitable for treatment will still be large.

In the nontuberculous types I have not hesitated to use force under anesthesia, especially in the tender knees and particularly in older persons who will not allow many attempts at straightening. Immediate correction seems best for them. Those who cannot safely take an anesthetic must go through the slower process of gradual correction, or forego treatment entirely.

The question of resulting movement is made secondary. Correction with the straight leg is the object sought; motion may or may not develop. As a rule, some motion remains if it was present before the correction, and sometimes it develops where pain and local conditions prevented it before the straightening. Motion must not be promised; even the straightening may not be possible. If there is some motion present, correction can usually be made by manual force. If not all at one time, then by a series of graduated efforts.

If the ankylosis is bony or densely fibrous or it is an old tuberculous joint, a bone operation is usually indicated. It is safer to do the bone work away from the site of the joint infection. This is particularly true after pyogenic and tuberculous infections.

The simplest method, and one fitting the largest number of cases, is the resection of a transverse wedge, apex posteriorly, from the front of the femur just above the epiphyseal line. The complete extension may have to be done in stages when immediate correction would interfere with the circulation or nerve supply of the parts below.

With the manual correction and the operative measures, most of these deformities can be overcome. The especially difficult and rare cases will not be discussed here.

The deformities of trauma, fractures and congenital defects will be corrected according to their individual requirements. Not only must the knee be corrected, but it must be maintained fully extended, and not flexed 15 to 20 degrees.

We are still largely under the influence of the old teaching that the knee should be held in slight flexion, from 10 to 20 degrees, during healing in order to have a more normal appearing limb when sitting or walking, the shortening enabling the patient better to clear the ground and to avoid a laterally swinging movement of a long leg when making the forward step. As a matter of fact, the flexion of 10 to 20 degrees helps very little in shortening the leg or in keeping it out of the way when the person is sitting, and in most legs the additional shortening is not necessary, as the disease itself commonly produces enough. In the occasional case in which the leg is long, a thicker sole may be put under the other foot.

Such possible gains from flexion are so slight compared with the certain disadvantages so constantly arising from the practice, that the whole principle of slight flexion for the stiffened knee should be completely discarded and the doctrine of the straight knee established in its place. Moreover, clinical observation shows that the slightly flexed knee is an elusive figure, as it can never be depended on to remain slightly flexed, unless in bony ankylosis, but tends by gravity and lack of proper extensor force to increase in flexion and in discomfort and limp.

Physiologically the permanently flexed knee is defective in that it requires for walking or standing constant flexion of the hip and ankle, never allowing the two normal joints to assume neutral positions of rest, as regularly occurs with each complete extension of the limb in normal walking. Walking with a permanently extended knee is also not physiologic, but at the time when the greatest weight is put on the limb it is always in the best position to sustain it, which is never the case in the flexed limb. It is far more comfortable, efficient and becoming than the weak, irritable and limping condition it has displaced.

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ABSTRACT OF DISCUSSION

DR. H. WINNETT ORR, Lincoln, Neb.: Dr. Parker has been so dogmatic in his statements that it is almost as difficult to differ with him as though he had been vague. I feel that on one or two points we may be permitted to take a little different view of the subject he has discussed. We all have the experience of having patients brought to us who have been permitted to acquire flexion deformities that should have been avoided. In such cases, as Dr. Parker has described, when the contraction is due to arthritis of whatever type, those deformities may always be prevented. In discussing such cases with physicians, I usually find that they have avoided splinting, especially the use of plaster of Paris in extension, because of their fear of ankylosis of the patella on the knee. One of the points that I desire to add to Dr. Parker's discussion is that early immobilization in these conditions of the knee joint will frequently serve not only to prevent the contraction deformity but actually to arrest the inflammatory process and to prevent many of the joint and bone changes that occur in such cases. Dr. Parker, in speaking of the degree of flexion to be avoided, confined himself to degrees beyond 10, although he did speak of complete extension as though that were the desirable position. If we can maintain a degree of flexion up to about 10 degrees, we shall find that it is the most comfortable and useful position. Complete or full extension of the knee is uncomfortable. Five or 10

degrees is more comfortable for the patient. Dr. Parker spoke of complete extension under a single anesthetic. That must be considered carefully in dealing with any patient. I have seen two or three tragedies following attempts to extend the knees completely—even those that were not flexed beyond 20 or 25 degrees; and if one is going to attempt a complete extension of any flexed knee, a very careful consideration must be given to the condition of the limb before, during and after the attempted extension.

DR. M. S. HENDERSON, Rochester, Minn.: One must consider two conditions very clearly in speaking of the treatment of a flexed knee; first, whether partial motion or an ankylosed knee will result. In the chronic infected arthritides, when the knees are flexed at right angles, and there is some subluxation, we must be very careful in the straightening. It may be better to do it in stages. One should be sure that the patients are in the late subacute stage or in the chronic stage, or the knees will bend again and we shall gain nothing. Dr. Parker advocates the completely extended knee, and I think he is right. That is what we must seek for. Dr. Lovett has popularized, if he is not responsible for, putting on a cast that is thick behind the knee, and after cutting it through transversely he gradually straightens the knee by putting in wooden wedges. When it comes to the question of a stiff knee, I think the position of election is open to debate. I myself believe that a patient is better off with an almost straight, stiff knee than with a partially flexed knee. That will depend somewhat on the occupation of the patient. Few men will elect a partially flexed knee, but women may. The average man would sooner have a straight stiff knee that he can walk about on freely, hunting and fishing, if he desires. He will put up with the inconvenience of the stiff knee during his street car rides and attendance at theaters more cheerfully than women will.

DR. JOHN PRENTIS LORD, Omaha: I agree with practically all that has been said. Perhaps our differences come from lack of understanding of individual meaning. I have much preferred to use the Lumbach knee splint, later called the Turner splint, and produce gradual straightening. Of course, the straightening must be more or less gradual, depending on the character of the case. The more chronic cases, those of longest duration, those that will give the most trouble, are cases in which there has already developed a large degree of backward displacement of the tibia and the fibula, and if it is not already developed, it will be increased with ordinary methods of straightening—either by the use of immediate force or by the use of traction. Dr. Hoke of Atlanta, Ga., has devised an ingenious cam screw for gradually exerting forward pressure on the leg portion of the cast. It costs about $70. I therefore sought to modify the so-called Turner splint. I made a splint that had a movable hinge. It has worked very effectively in my experience.

DR. CHARLES A. PARKER, Chicago: Dr. Orr spoke about my being dogmatic. I am. That is what I am here for. The day before I left I had to straighten one leg that had been crooked for thirty years. I asked the man whether it was nice to have a flexed knee. He said he would rather have it straight. I cannot see any reason for having even 5 or 10 degrees' flexion. A little bend in there is a little like light wines and beer. There is no limit; one has to have it a little heavier and a little heavier. The admonition to be careful about straightening out these knees is good. I hold that possibly it is best if we can do it at once, because the patient will not always give one the second chance. But we must not do harm if we cannot straighten it. Some one spoke about the desire of the knee to bend again. That is true. We must keep after it and not let it bend again.

Teeth.—Healthy, normal teeth are a priceless possession, but those which, through pulp removal, have lost their blood supply become objects of suspicion. If in addition, infection has occurred at the apex of the root, they become a questionable blessing, while in cases in which this infection has become a focus of ill health, the tooth becomes a menace and its possession a curse.—Thoma, K. H.: Teeth, Diet and Health, New York, The Century Company, 1923.

BLUE SKY HEALTH PROPAGANDA *

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It is a peculiar pleasure to me to discuss with those who are deeply interested in the preservation and prolongation of human life one particular problem of public health work that is of paramount importance. Every physician has undoubtedly considered the many and diverse methods that are generally used to interest the individual in his own welfare, and has wondered, like all investigators in the methods of health education, just how much of this propaganda is really efficient and something that will prove of permanent benefit to mankind. There is a general demand for reliable health information, and the good citizens of this country are looking to the American Medical Association to give them all that science affords for the promotion of personal health and the prevention of disease. It is the essential function of this section to make every member of the association an active advocate of preventive medicine. Public health propaganda must be founded on scientific truth, and we owe a service to humanity to expose all inefficient and questionable procedures.

"Blue sky" is a common expression used to designate doubtful or worthless stock sold by a persuasive promoter by means of a beautiful prospectus without due provision being made to safeguard the investor. Blue sky health propaganda consists of beautiful promises of health and happiness without due provision being made for their efficient and practical realization.

Universal health will be possible only by the universal and effective application of all known principles of disease prevention. As a result of scientific research there is an abundance of accumulated knowledge which is available for the education of public opinion in personal hygiene. Are we, the representative physicians of this country, not shirking our duty when we do not seem to make every possible effort to make this knowledge available to every human being? The average physician does not seem interested in public health sufficiently to discuss it intelligently. Some even go so far as to say that they are not health policemen. Others are openly antagonistic to public health work. There must be a definite reason for this seemingly apparent lack of interest. The physician is not naturally a poor citizen, but is usually generous in his contributions to worthy causes. He is always ready to sacrifice himself to relieve the distress of suffering humanity. But there is something spectacular about rendering aid to the helpless, and the public applause is not unpleasant music. The far-sighted policy of preventing possible distress has not received the attention it should from our present civilization. Physicians do not seem to realize the service they owe to the community. Physicians have not been trained sufficiently to look for the more or less remote causes of disease. The teaching of health in our medical schools is almost everywhere a farce. Prevention is greater than cure, and this is apparent to all except the physician who insists on being a mender of broken down machinery instead of a builder of health. There can be no denying of the fact that many physicians consider public health work little

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more than "blue sky." Health examinations are not given serious consideration, and efforts are not being made to interest the apparently healthy individual in his own welfare. As long as physicians maintain this attitude, the practice of medicine will always be open to adverse criticism, and the gates will be open for the cults to flourish. Every cult, quack, faker and nostrum dealer professes to cure disease, but it always remains for the timely scientist to devote, and even sacrifice, his life to develop methods for preventing disease. The prevention of disease marks the truly scientific physician, and when he loses sight of this important service, he allows his profession to degenerate to the plane of the mercenary healer. The general public has not been slow to note this glaring inconsistency.

The opportunity has been grasped by the irresponsible practitioners of healing whose sole interest it is to evade the rigid qualifications required by law for the practice of medicine. In order to cover up their real incentive, they have capitalized the shortcomings of the medical profession, and every plausible form of treatment has been used to justify their evasion of the law. A careful investigation discloses the fact that none of these so-called systems have been able to demonstrate scientifically the truth of their contention.

But these irresponsible practitioners have found this to be an easy and lucrative way of making a living. In order to protect their questionable practices, they are substantial monthly contributors to organizations whose main purpose it is to intimidate legislators to legalize these so-called systems, and finance publicity bureaus for the distribution of misleading information.

Bulletins are broadcasted that boldly state they are against compulsory medicine and surgery for adults and children. Granting that it is allowable for adults to assume this responsibility, we are permitting irresponsible individuals to run riot and not only to endanger themselves but menace the community by their utter disregard of all sanitary and hygienic laws.

There can be no justification for this inhumanity to helpless and defenseless children. Misguided parents who sacrifice the lives of their children to fanatical beliefs require serious consideration. A mother who allows her child to die of malignant diphtheria knowingly should be tried for wilful manslaughter. The agency that sponsors this pernicious propaganda and is doing everything possible to undermine all means of health protection is guilty of a greater crime than treason. Thousands of lives are being sacrificed annually on the altar of ignorance that might have been saved by the timely application of the principles of preventive medicine. Every health officer can cite many instances wherein parents have refused treatment and allowed their children to die for want of intelligent care. Where is this wanton disregard for human life going to end? There are active agents carrying on an insidious campaign promulgating distorted facts and plausible speculations, who are taking every possible advantage to blind the public in regard to the phenomenal progress made by the science of disease prevention. It is hoped that a great calamity will not be necessary to awakén the public to the real danger of this truly blue sky propaganda. Let the present European situation—poverty, pestilence, plague —serve as a sufficient warning to an intelligent nation. Epidemics of fatal smallpox have had the effect of reminding some states that lax preventive measures are a costly experiment. An intensive campaign of education is necessary to protect trusting humanity, and prevent it from exchanging its investment in all that science affords in protecting its most valuable asset, health, for the blue sky promises of health and happiness of the fanatic or designing disciples of unproved theories.

It is of the utmost importance that the physician become the family adviser and give his attention to the little things that make life more tolerable. In order that the physician may be a truly scientific man, he must be versed in sociology and the remote causes of disease as well as the treatment of human illnesses. There must be a general reformation of the art of teaching, beginning with the medical schools and colleges and extending down through the entire educational system. The keynote of all education must be better living. Every enterprising advertiser appreciates the value of health and happiness in making an appeal to the public. The institution that can do most to promote health and happiness has never taken the advantage of this wholesome propaganda that it should to be of the greatest benefit to our civilization. Scientific disease prevention has been confined too long to a few determined and self-sacrificing workers instead of being a part of the activities of every physician. It should be the principal object of our medical schools to make every student an adept in disease prevention. Comprehensive courses in disease prevention should constitute a major study in all our medical schools. State aided schools should receive appropriations in the proportion to the extent that they teach preventive medicine.

The state cannot appropriate funds to a better advantage than to provide definite means for safeguarding the health of the people. Another step that is of equal importance is that we must have a thorough housecleaning of our own ranks before we can carry out an effective campaign against the false propaganda of the day. Our medical examining boards are crippled by an organized campaign of intimidation. There is a crying need for the appointment of a commission of scientists to determine fitting standards for the healing art, which necessarily must be the same for all applicants. This commission must be constituted of the best men in the state, and they should be given power not only to pass on applicants, but also after due trial, to revoke the license of all practitioners who are guilty of unlawful practices. We have given our supreme court more power than this; is it not more vital to safeguard human life with a similar procedure? A state board freed from all political interference, made up of the state's most competent scientists, and supported by every reputable physician, can not only maintain professional standards but also make every physician in the state an administrator of better health for the community.

Physicians and sanitarians cannot handle the situation alone, and voluntary agencies interested in health matters are necessary to insure the cooperation of the public. The multiplicity of organizations divides the issue and complicates the duties of the field worker, which seriously impairs the efficiency of the work.

Social workers constitute an active part of public health work. There is too much of a tendency at present for social workers to lose sight of their limitations and invade the fields of the physician, health officer and public health nurse. Public health nursing is performing an important mission by carrying preventive measures and hygiene into the home. While a

well balanced educational background is essential, this profession is starting out with almost prohibitive standards, with too much emphasis being laid on executivism, long vacations and high salaries. It is a big mistake for health workers to capitalize their own personality at the expense of efficient health work. The work should be conducted so that any good worker can follow it up with practically no interruption.

Public health work should be under the direction of full-time health officials. The volunteer organizations have a big mission to fill, and one of the essential functions should be to bring the physician in closer touch with the people. A strong organization can do much to create public opinion favorably toward health education in our schools.

Our present system of health education in most states is not satisfactory. There seems to be an active propaganda to elect individuals to school boards whose sole object it is to prevent the teaching in our schools of all matters that might effect the health of the people. In addition to this, most of our health education at present is of the artificial or textbook variety, and the teacher has no apparent background for the teaching of the subject. Artificial methods of health education, like synthetic foods, have had their day, and the time is now ripe for the application of natural methods of teaching children how to live. Another R should be added to the elementary course of education. Right living is an essential that can best be taught by systematically observing nature.

The teaching of the science of life from the elementary to the high school grades is essential in order that children may be taught to discriminate in matters of health and disease prevention. Every child is interested in nature, and it has been the experience of teachers of elementary biology that they soon become health enthusiasts. It behooves the physician to support the movement to place the teaching of health on a practical scientific basis. If the profession fails to endorse this movement, this matter will undoubtedly be handled by the public itself. It has been the experience in England and in other European countries where the public has taken a hold of health matters that the profession has suffered materially, and measures have been taken that have resulted in the physicians becoming the hirelings instead of the leaders.

The government administration of health is essential, but the profession should assume the leadership and see that men of the finest caliber are appointed to safeguard the public health. Too much cannot be done to uphold the honor and dignity of the highest court of appeal on matters of public health and make it compare favorably with the supreme court of the land, if not higher. This court of last appeal can then eliminate all "blue sky" health propaganda, and give the people the protection that they have a right to demand.

ABSTRACT OF DISCUSSION

Dr. A. T. McCormack, Louisville, Ky.: It is important for us to remember that we are physicians, and that, if we know things that will furnish greater opportunity for service to the people, it is our job to do those things for the people. We know definitely that a very considerable percentage of our people are not receiving the benefits of modern methods. We know that large numbers of people suffering from disease or accident are not being treated for the condition. Operations are done, medicine is administered, but we have not yet so organized ourselves that we rehabilitate the individual rendered inefficient by disease or accident so that he again becomes as useful a member of society as it is possible for him to be. Thousands of people come too late. They come too late because we have not taken the public into our confidence in the vernacular, in terms that they can understand, so that they know what modern scientific medicine can do. We ourselves have been so interested in these advances, they have taken up so much of our time in keeping up with progress in our profession, that we have failed too frequently to disseminate information of these advances to the public. It is essential that the public get the news. How are we going to do it? It is absolutely essential for those of us who have specialized in this branch of practice to go into the medical schools and find the students while they are still in the process of formation and growth, and inject into their cerebrums some of the common sense and some of the human spirit that is essential if they are going to practice preventive medicine to any degree. And we must always remember that the physician is going to be the health officer who will come into most intimate contact with the individual, and the practicing physician must be charged with the public health propaganda and the public health responsibility. In proportion as he is charged with this knowledge and with this propaganda will his work be successful and the general public be benefited.

Dr. Frederick D. Stricker, Portland, Ore.: Physicians must surrender the right to dictate the standards of the art of healing to a commission of scientists. There can be only one standard of the healing art, and that is a well grounded education in the fundamental sciences. One united volunteer health association is about the limit for efficient work in a community. Health workers must be under the immediate direction of the official in whose hands the safety of the health of the community is placed. Education from the youngest child to the college graduate must include specific courses in how to live. The carrying out of these provisions cannot fail to increase the efficiency and lesson the spectacular in public health work.

FOREIGN BODIES IN THE BRONCHI IN CHILDREN *

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AND
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LOS ANGELES

We should not discuss foreign bodies in the bronchi without first expressing our appreciation and indebtedness for our present knowledge on this subject to that keen clinician, logical research worker and master of the art of bronchoscopy, Chevalier Jackson. Everything we may have to say on this topic must be a mere repetition of the results of the published work of Jackson and his co-workers. Our reasons, under these circumstances, for reiterating some of the principal facts concerning foreign bodies in the bronchi in children, are:

1. The not infrequent occurrence of this accident in childhood.
2. Recent advances in the diagnosis of foreign bodies in the air passages.
3. The vital importance of early diagnosis.
4. The desire to stimulate cooperation between the pediatrician, the roentgenologist and the bronchoscopist, and the resultant saving of human life.

Unfortunately, in the practice of medicine, we can only in rare instances leave the bedside of a patient with the absolute conviction that our efforts have enabled us actually to save life. In this field, however, we are

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afforded an opportunity to enjoy this most gratifying of all rewards, if we will promptly recognize the condition and give the child the benefit of expert care.

Classification of foreign bodies that may enter the air passages may be made from different points of view. The simplest and, from a clinical standpoint, most important grouping, is to divide them into (1) inorganic substances and (2) organic substances, and then separate these again according to their radiability, into (1) opaque substances and (2) nonopaque substances.

Foreign bodies, after they enter the bronchial tree, set up more or less reaction in the invaded tissues, depending on their size, shape and chemical composition. A foreign body that does not obstruct drainage from or aeration of the lung, tributary to the invaded bronchus, produces less reaction than a foreign body of the same physical and chemical characters but of such a size and shape as to occlude the invaded bronchus in such a way as to obstruct drainage and aeration. Inorganic substances, as a rule, cause only a local reaction. This, at times, is extremely slight. Iron and steel are perhaps the least irritating of all metals.

Organic bodies set up a more severe and extensive general inflammatory reaction; bone is an exception to this rule. The most irritating of all substances is the roasted peanut kernel; other nut kernels, such as the walnut, also cause marked general reactions. The inflammatory process set up by the roasted peanut is so violent and so dangerous to life that it has been described separately and in detail under the name arachidic bronchitis. All of Jackson's cases occurred in children. The younger the child, the more severe the reaction. The pathologic condition produced consists of an edematous, purulent laryngotracheobronchitis, which, if not fatal, results in lung abscess unless the peanut is promptly removed.

The symptoms produced are due to (1) swelling of the mucosa of the air passages, resulting in dyspnea and cyanosis, and (2) accumulation of purulent lung secretions, very difficult of expulsion, and the absorption of toxins from which result fever and other signs of toxemia. This very grave and often fatal condition may be produced within a few hours after the aspiration of the nut. It may also be of interest to mention here that organic bodies, such as nuts and maize, may remain in the bronchi for several weeks without undergoing disintegration. The only appreciable change, as a rule, is a swelling of the foreign body which still further complicates aeration and drainage of the lung tissue.

The members of the opaque group, represented principally by metallic bodies, are as a rule easily demonstrated on the roentgenogram. Nonopaque substances, such as peanuts, nut kernels, peas, seeds, celluloid and rubber, may, in rare, fortunate instances, cast a shadow on the roentgenogram. Until a few years ago we were forced to depend on the history, symptoms and physical examination to make a diagnosis of a nonopaque foreign body in the bronchi. Now, thanks to the work of Chevalier Jackson and his co-workers Spencer and Manges, a proper interpretation of the roentgenogram will help us to make and confirm the diagnosis of a nonopaque foreign body in the air passages.

This recent work is a milestone in the path of diagnosis of foreign bodies. The great importance of determining the presence and location of nonopaque bodies must be again emphasized, as in this group are included principally the organic substances that result in violent reactions and abscesses, if not removed promptly. Formerly it was assumed that a foreign body of this type would act as a ball valve, letting air out but not permitting it to enter, producing thereby a partial atelectasis distal to the foreign body which would increase the density of the shadow on the picture. The facts appear to be exactly the reverse. The three characteristic roentgenographic signs of nonopaque foreign bodies in the bronchi are: (1) increased transparency of the entire affected side; (2) depression of the diaphragm on the affected side, and (3) displacement of the heart and mediastinal structures away from the affected side. These roentgenologic signs are best shown by taking two exposures, one at the end of full inspiration and a second at the end of full expiration. The plate at the end of inspiration will show the lungs equally or nearly equally filled with air. The one taken at the end of expiration will show the normal lung nearly depleted of air, while the invaded lung will be more or less nearly full. These findings are caused by an acute obstructive emphysema due to the fact that, except when the obstruction is complete, a small amount of air passes the foreign body on inspiration while on expiration none escapes, owing to a contraction of the bronchus with a narrowing of its lumen. An inflammatory condition in the bronchi at the site of the foreign body is an essential factor in the production of this emphysema. Later on, when secretions accumulate, we get a condition known as drowned lung distal to the point of obstruction; and this is then represented by an increased density in the plate.

The diagnosis of the presence of a foreign body is made by means of a careful history, physical examination and roentgenography. A history of sudden choking, accompanied or followed by a paroxysmal cough and in some instances by cyanosis, rapid breathing and wheezing respiration, is extremely suggestive of an aspirated foreign substance. Dyspnea and cyanosis may be transitory, continuous or periodic.

The signs elicited by a careful physical examination vary widely in character, depending on the size, shape, composition, position and length of residence of the foreign body in the respiratory tract. Foreign bodies produce physical signs dependent on their physical properties and position only, if seen before lung changes have developed. When an object has entered the primary bronchus, the picture will vary according to the degree of obstruction. If not obstructed, there may be little or no alteration in the percussion note or breath sounds, and no other physical changes. Suspicion of a foreign body once having been aroused, all human aids to diagnosis of such a condition must be utilized until we get a negative result.

When the object is of such size, in such position or surrounded by sufficient inflammatory tissue as to be partially obstructive, we can expect these physical findings:

1. Diminished expansion of the affected side. This is really the only one constant physical finding.

2. Muffled tympany, a peculiar impaired resonance over the affected side. Later, if the condition of drowned lung supervenes, this changes to dulness or flatness.

3. Diminution or complete abolition of the breath sounds over that portion of the lung supplied by the obstructed bronchus.

4. Asthmatoid wheeze, a sound heard by placing the ear in front of the patient's mouth during expiration. It resembles the wheezing of the asthmatic patient, but is drier. It is not present when a bronchus is tightly occluded. The cooperation of the patient is frequently necessary; therefore, it cannot allways be elicited in small children. The sound is more likely to be present with the object irregular or angular in shape.

5. There may be an inspiratory retraction of the interspaces.

In recent cases, the history, the physical findings and the roentgenologic examination should enable us in practically all cases to make the diagnosis of foreign body in the bronchus, and also to determine its location in the lung.

The cases offering the greatest difficulty in diagnosis are those in which the foreign body is nonopaque and in which the sojourn of the foreign body in the air passages has been sufficiently long to set up signs of acute or chronic inflammation. Time does not allow us to discuss these and other sequelae, such as lung abscess. We wish only to mention the following established facts. Tubercle bacilli have never been found associated with a foreign body in the bronchus at the bronchoscopic clinic of Chevalier Jackson. The pleural cavity almost never becomes involved, even in long standing cases of foreign bodies; and, lastly, clubbing of the fingers and toes, night sweats, hemoptysis, loss of weight, in fact all the symptoms of tuberculosis, may be simulated with exactitude in cases of prolonged retention of the foreign body in the air passages.

Three cases of aspiration of zinc stearate have come under our observation. In every instance these children showed a severe reaction and developed a bronchopneumonia in from twenty-four to forty-eight hours. One infant that inhaled talcum powder developed a bronchitis. The reaction seemed to be less than with zinc stearate. These accidents occur with sufficient frequency to make a word of warning to the parent and to manufacturers of dusting powder timely and called for.

The treatment of all cases of foreign bodies is always the same: removal by bronchoscopy. In only about 2 per cent. of cases is a foreign body spontaneously expelled. Chevalier Jackson tells us that almost any localizable foreign body that has gone down the natural passages can be brought up the same way, and reports 98.3 per cent. recoveries in his work. The risk of a brief and careful bronchoscopic examination without anesthesia is almost nil. Unfortunately, no one else has attained the skill and judgment of Jackson. Many times it is not advisable or possible to transport these patients to Philadelphia. It is highly important, therefore, that bronchoscopic clinics be established in all the larger cities where one or two individuals who have aptitude for this work may gain the necessary experience and skill to give these patients the desirable expert treatment. Dexterity, patience, judgment and mechanical sense need to be developed by frequent opportunity in the use of the bronchoscope, for the element of time consumed and good technic are essential to good results.

Humanity and medical science owe a tremendous debt to Dr. Jackson and his associates for having so greatly advanced our knowledge of this fascinating subject.

ABSTRACT OF DISCUSSION

DR. ISAAC A. ABT, Chicago: Dr. Dietrich called attention to a very important point in the diagnosis of foreign bodies in the bronchi—particularly, however, to the identification of the nonopaque bodies. According to this improved method of plate interpretation, they can be diagnosed by the irregular and lowered condition of the diaphragm and the other conditions which he has pointed out. The presence of foreign bodies in the bronchi seems to be on the increase. Any addition to our knowledge of diagnosis should be considered a distinct evidence of progress.

DR. HENRY DIETRICH, Los Angeles: Previous to the time that Chevalier Jackson learned to interpret his own plates—and they were at it a long time—frequently the bronchoscope was put into the wrong lung, because the assumption was that the side which was obstructed would show more density in the plate.

PANCREATIC INSUFFICIENCY RESULTING FROM LARGE MEAT PROTEIN INTAKE

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In the recent intensive investigation of diabetes mellitus, stimulated by the advent of insulin, little attention has been given to the rôle of protein, especially meat protein, in producing pancreatic insufficiency. The factor of keeping the patient's carbohydrate intake well within his estimated tolerance limit has been appropriately stressed, but a number of the diet cards distributed to diabetic patients fail to impress the necessity of protein restriction. Frequently, meats are listed among the carbohydrate-free group, and mild or prediabetic patients are allowed to go the limit on these articles, because they contain no carbohydrate, as such.

Von Noorden has called attention to the fact that large amounts of meat protein thrown on the digestive system by a single meal may produce a temporary paralysis of pancreatic function. That this reaction is the result of protein attack rather than due to the available glucose represented by the meat is borne out by the case cited.

A man, aged 33, whose family history was essentially negative, no known cause of diabetes having occurred in the family, had had the usual diseases of childhood, and also a mild attack of scarlet fever in 1920. Otherwise he had always been well. During an insurance examination in April, 1923, glycosuria was discovered, following a heavy meal. There had been no symptoms pointing to a diabetic condition, the only suspicious factor being an increase of weight of 20 pounds (9 kg.) during the last two years. A glucose tolerance test performed the following day also resulted in glycosuria. No blood sugar determination was made at this time, as the insurance examiner had no facilities for making blood chemistry estimations.

The patient was put on a diet with moderate carbohydrate restriction (150 gm. daily), and no glycosuria resulted. A blood sugar determination performed, on May 3, following a meal of approximately 30 gm. of protein, 50 gm. of fat and 50 gm. of carbohydrate, showed 0.112 mg. the first hour and 0.098 mg. the second hour. The case was undoubtedly well within tolerance limits on this diet.

The next blood sugar determination was made, June 4. Before this examination, the patient had eaten sparingly of carbohydrate food, but consumed nearly three-fourths pound of beef steak. The meal consisted of the steak, a small helping (tablespoonful) of mashed potato, one slice of bread with butter, one glass of milk and a medium portion of sliced tomato. Approximately figured, the meal contained from 75 to 80 gm. of protein, 30 to 40 gm. of fat and 45 gm. of carbo-

hydrate. The available glucose, calculating the protein 58 per cent. and the fat 10 per cent. convertible to glucose, was 90 gm. After this meal, the blood sugar rose to 0.235 mg. for the first hour, and remained fixed at the same figure for the second hour. There was marked glycosuria, which disappeared in about six hours. Tests for acetone and diacetic acid were negative.

Later in the month, as a result of these findings, the patient entered the hospital and was given a seven-day series of test diets with daily twenty-four hour urine examinations and blood sugar determinations performed every second day. The results were:

First day: Diet, protein, 70 gm.; fat, 139 gm.; carbohydrate, 50 gm.; calories, 1,731. Available glucose, 104 gm. Twenty-four hour urine, sugar, 0. Blood sugar, first hour, 0.074.

Second day: Diet, protein, 76 gm.; fat, 1442 gm.; carbohydrate, 75 gm.; calories, 1,882. Available glucose, 134 gm. Twenty-four hour urine, sugar, 0.

Third day: Diet, protein, 92 gm.; fat, 158 gm.; carbohydrate, 113 gm.; calories, 2,242. Available glucose, 180 gm. Twenty-four hour urine, sugar, 0. Blood sugar, first hour, 0.098.

Fourth day: Diet, protein, 103 gm.; fat, 163 gm.; carbohydrate, 137 gm.; calories, 2,431. Available glucose, 213 gm. Twenty-four hour urine, sugar, 0.

Fifth day: Diet, protein, 101 gm.; fat, 158 gm.; carbohydrate, 154 gm.; calories, 2,447. Available glucose, 230 gm. Twenty-four hour urine, sugar, 0.

Sixth day: Diet, protein, 104 gm.; fat, 158 gm.; carbohydrate, 211 gm.; calories, 2,687. Available glucose, 288 gm. Twenty-four hour urine, sugar, 0. Blood sugar, first hour, 0.112.

Seventh day: Diet, protein, 104 gm.; fat, 158 gm.; carbohydrate, 211 gm.; calories, 2,687. Available glucose, 288 gm. Twenty-four hour urine, sugar, 0. Blood sugar, first hour, 0.113.

The significant point of these figures seems to be tha on the last test diet, with an intake of 104 gm. of protein, 158 gm. of fat and 211 gm. of carbohydrate, and 288 gm. of available glucose, no glycosuria resulted, and the blood sugar determination of 0.112 mg., one hour after eating, was well within normal limits. The actual meal before which this last blood sugar was taken contained 35 gm. of protein, 55 gm. of fat and 72 gm. of carbohydrate, and 97 gm. of available glucose.

On the other hand, after the meal of June 4, which contained much less carbohydrate and convertible glucose, but considerably more meat protein, a glycosuria and very high blood sugar reading resulted, lasting at least six hours: protein, 75 gm.; fat, 30 gm.; carbohydrate, 45 gm.; glucose, 90 gm.; blood sugar, 0.235. Final test: protein 35 gm.; fat, 55 gm.; carbohydrate, 72 gm.; glucose, 97 gm.; blood sugar, 0.112 gm. Both blood sugar specimens were taken one hour after the meal.

The inference seems reasonable that the large meat intake produced a temporary paralysis of pancreatic function, and bears out von Noorden's statement to that effect. It would seem good policy, therefore, to place more emphasis on meat protein restriction in prediabetic and diabetic patients.

5 Liberty Street.

Duodenal Diverticula.—Duodenal pouches may arise from any of the three portions into which the duodenum is anatomically divided. The great majority are found in the second portion of this segment of the intestine and particularly on the postero-internal aspect, in close relation to the ampulla of Vater, so that diverticula at this particular site have been termed by the French "diverticules périvatériens."—Huddy, G. P. B.: *Lancet*, Aug. 18, 1923.

Clinical Notes, Suggestions, and New Instruments

VERTICAL FRACTURE OF THE ARTICULAR SURFACE OF THE PATELLA

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The common type of fracture of the patella is a simple transverse fracture due to muscular violence. Occasionally, one sees a fracture of the apex or of the superior border, which is torn away with the attached quadriceps extensor tendon. In an injury from a direct blow, one sees either simple or compound linear or comminuted fractures. Longitudinal fractures through the body of the patella have also been described, but in none of the articles on patellar fractures or in the textbooks on surgery have I come across a description or even mention of the tearing off, by trauma or otherwise, of part of the posterior articular surface of the patella. In response to an inquiry on this subject at a clinical conference of the staff of the Hospital for Ruptured and Crippled, none of the surgeons present had ever seen a similar case. I therefore concluded that the type of fracture shown in my case is exceedingly rare.

Lateral view of knee before operation. The arrows indicate the location, and the dotted lines the size of the loose fragments of the patella. The shadows were distinctly visible in the original plates, but did not show up well in the prints; hence the dotted lines were used to outline the shadows of the fragments.

REPORT OF CASE

W. F., a boy, aged 18, was thrown down in a game of football. He felt severe pain in the left knee, and was unable to get up. He was carried off the field and taken to the Rockaway Beach Hospital, where he remained under the care of his physician, Dr. A. W. Victor. The knee became markedly swollen immediately after the injury, though there was no external bruising or discoloration. I was called to see the

patient two days later. At this time he complained of pain in the knee and inability to move the limb. The disability was apparently due to pain. The knee was decidedly enlarged; there was distinct fluctuation due to an effusion into the quadriceps bursa and the knee joint. There was no redness or local heat. Passive movement of the knee was possible, but painful. There was no infiltration of the soft tissues, so that the swelling was due entirely to an intra-articular effusion. The tibia and femur were normal in outline, and not tender. The patella was normal in outline, but moderately sensitive. There was no palpable irregularity of either the anterior surface or of the borders of the patella; there was no break in the continuity of the body of the patella; that is, no fracture, so far as one could determine from the ordinary methods of clinical examination. The patellar ligament and the lateral patellar ligamentous tissues were intact.

The roentgenogram showed, in the lateral view, three abnormal shadows between the patella and the femur. One was a linear shadow one-fourth inch long and about one-sixteenth inch wide extending obliquely downward and backward from the inferior border of the articular surface of the patella. The second shadow was about three-eighths inch square, behind the middle of the patella, from which it was separated by a distinct interval, and lying over the shadow of the internal femoral condyle. The third, situated above the shadow just described, behind and above the patella and overlapping the femur, was about three-quarters inch square. The posterior surface of the patella was concave to a greater degree than normally, and in the middle third was moderately irregular. The tibia and femur were normal.

It was apparent that there were three loose pieces of bone in the knee joint, and that these had been torn off from the articular surface of the patella. The removal of these bodies from the knee was evidently necessary for the cure of what was bound to be a troublesome and disabling injury. It was therefore decided to operate as soon as the swelling subsided.

The operation was performed on the tenth day after the injury. A vertical incision was made over the front of the knee from a point 1½ inches above the patella to the attachment of the patellar ligament to the tibia. A vertical incision was made through the periosteum of the patella, which was sawed through into two lateral halves. The quadriceps tendon above and the patellar ligament below were incised for half an inch beyond the patella. The split halves of the patella were retracted, and an excellent exposure of the joint was obtained. The knee was filled with clotted blood, and embedded in this were three loose masses of bone corresponding in shape and size to the shadows seen in the lateral roentgenogram. The articular surface of the patella was very rough and excavated, and the loose pieces of bone fitted roughly into and were undoubtedly torn away from this part of the patella. The exposed surfaces of the femoral condyles were smooth, and showed no signs of any injury. The blood clot was removed from the joint with instruments, and with great care not to injure the cartilage of the femoral condyles. The incisions in the quadriceps tendon and in the patellar ligament were repaired with thin kangaroo sutures. The patellar fragments were easily brought into contact, and held so by the sutures through the quadriceps and patellar tendons and a row of catgut sutures through the periosteum over the patella. The deep fascia and skin were closed with separate layers of catgut sutures. Over the usual gauze dressing, a plaster-of-Paris circular splint was applied from the toes to the groin, with the knee in complete extension.

One week after the operation, the wound had healed. Several days later, passive motion was begun. The patient began bearing weight on the limb three weeks after the operation. Then baking, massage and mechanotherapy were instituted, and the patient made a perfect functional recovery. Roentgenograms taken four weeks after the operation showed that the knee joint was free from the shadows previously seen and that, except for some roughening of the posterior surface of the patella, the joint was normal.

The larger masses of bone were about one-eighth inch in thickness, were lined with cartilage on one surface, and had cancellous bone on the other side. As there were no ridges or rough areas on the femoral condyles, it is difficult to explain how this fracture was produced. Very likely, the knee was in semiflexion during the fall. In this position the middle of the patella is in contact with the femoral condyles. A direct blow at this time, as in falling on the knee, increases the degree of contact between the patella and the femur, and, forcing the patella downward, could conceivably cause a shaving or scraping off of part of the articular surface.

It has appeared worth while to report this case because of the unusual type of fracture, and because in a review of the literature I did not find a record of a similar case.

1 West Eighty-Fifth Street.

DARK FIELD EXAMINATION OF TUBERCLE BACILLI*

EDWARD W. SCHOENHEIT, M.D., ASHEVILLE, N. C.

This method of microscopic examination is chiefly used for demonstrating *Spirochaeta pallida* in the unstained specimen, but certain investigators have found it valuable in the study of stained specimens. Hoffmann[1] found the dark field useful in demonstrating the spirochetes of yellow fever and jaundice in stained specimens, and likewise believes that it is valuable for studying tissue sections. Ficker[2] used Hoffmann's method for examining flagellates. Silberstein[3] and Zorn[4] applied the method in examining other forms of bacteria, among them the tubercle bacillus, and state that they could find them much more easily and in greater numbers than in the luminous field.

We have tried this method for examining specimens of sputum and urine sediment for tubercle bacilli, and found that we could see them more quickly, in greater numbers and with greater facility than with the light field, and bacilli in thick specimens could be more easily seen.

TECHNIC

The specimen is mounted on a glass slide of appropriate thickness and stained according to the usual Ziehl-Nielson method. We advise using a dark field apparatus so constructed that the examiner may change the picture from dark to luminous field without moving the slide. We use a Reichert mirror condenser with a rotating disk, enabling the examiner easily to change the picture from dark to light.

The lens is a one-twelfth oil immersion equipped with a conical plug ordinarily used in dark field work. The best picture is obtained with a micro-arc lamp, but a very good one may be seen with a 100 watt Mazda lamp.

In examining important specimens in which the finding of a few bacilli may make the diagnosis, this method is to be recommended. One may locate a bacillus with the dark field and then confirm it by turning the disk.

In examining twenty fields in a specimen of sputum, we found 120 with the dark field and seventy-four with the light field.

46 Reed Street.

AN UNUSUAL TWIN BIRTH: A CASE IN WHICH THE TWO HEADS WERE BORN AT THE SAME TIME

A. W. PETIT, M.D., NASHUA, N. H.

Mrs. D. R., aged 27, in her fourth full-term normal pregnancy, had not had difficulties at the previous deliveries, eight, six and three years before. The babies had weighed from 6 to 7 pounds (2.7 to 3.2 kg.) each, and there had been no perineal tear except a slight one, repaired at the first delivery.

When I arrived at the bedside, July 7, 1923, the patient had been in labor for two hours, and was having strong pains at three-minute intervals. Vaginal examination showed a left occipito-anterior presentation, with the head on the

* From the von Ruck Research Laboratory for Tuberculosis.

1. Hoffmann, Erich: Deutsch. med. Wchnschr. **47**: 65 (Jan. 20) 1921.
2. Ficker, M.: Deutsch. med. Wchnschr. **47**: 286 (March 17) 1921.
3. Silberstein: Deutsch med. Wchnschr. **47**: 775 (July 7) 1921.
4. Zorn: Zentralbl. f. Bacteriol. **88**: 95, 1922.

perineum. After a few pains, the vertex progressed so that it was nearly one-half born, but came no farther. Examination to ascertain the cause of this sudden arrest showed a second head in the pelvis pressing into the neck of the first child. The second head was pushed upward, after which the first head was born. In a few minutes' time, the second head also was born. Seeing the two heads born at the same time, I supposed that I was dealing with a double-headed monster.

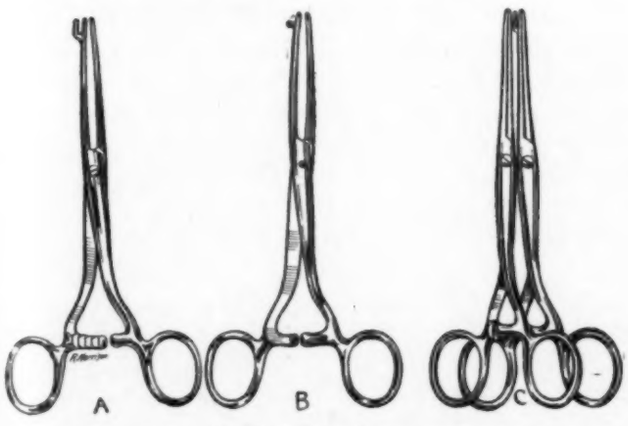
The labor pains then ceased, but with some difficulty I succeeded in bringing out a perfectly normal boy who had been sliding out past the first head. A second normal boy was born without difficulty a few minutes later.

The two placentas were adherent and were expelled together. There was no perineal tear and little hemorrhage. The mother was in labor only three hours, and made an uneventful convalescence. The boys together weighed 12¼ pounds (5.5 kg.), and are both well.

A NEW THYROID MUSCLE CLAMP

BENJAMIN IRVING HARRISON, M.D., KNOXVILLE, TENN.

In suturing the divided preglandular muscles, following an operation on the thyroid gland, it is at times difficult for the surgeon and his assistants to maintain a steady, close approximation with the type of clamp that has been in use up to the present. This difficulty is most evident in patients that have well developed preglandular muscles. To overcome this problem I have devised a special set of thyroid muscle clamps, which have given me satisfactory results.



Thyroid muscle clamp.

This set of clamps consists of a pair of 6½ inch clamps with a blade 2 inches long. The clamp at *A* in the accompanying illustration has a hook at the tip and an eye at the heel of the ratchet, while the clamp at *B* has an eye at the tip and a hook at the point of the ratchet. These hooks and eyes firmly hold the clamps together when approximated, as shown at *C*.

The clamps should be placed on the preglandular muscles with the blades carrying the hook and eye at their respective tips underneath the muscles. The index finger of the left hand can be advantageously used to guide the clamps into position. The hooks and eyes on the clamps are so placed that they do not interfere with the operative procedure. To approximate the preglandular muscles, one should take the clamp with the hook at the tip and insert this hook into the eye on the tip of the other clamp. Then the handles of the clamps are superimposed, the hook and the eye at their ratchets being allowed to engage, thus completing the fixation. By means of these two simple movements the clamps are secured and the muscles brought into the desired close approximation for suturing.

The advantages of this set of thyroid muscle clamps are:

1. They are so constructed that they hold the divided muscles in close, solid approximation against any amount of muscle pull, thus facilitating accuracy and speed in suturing the preglandular muscles.

2. The application, approximation and fixation of the clamps are easily accomplished as well as their removal.

3. The special hooks and eyes for securing fixation in no way interfere with the operative technic.

705 Market Street.

SIMPLE VACUUM APPARATUS FOR SUPPURATING EARS

E. W. CARPENTER, M.D., GREENVILLE, S. C.

We have for years employed a glass dropper with the small end placed in a short rubber tube, as a routine part of home treatment in all forms of suppuration of the middle ear. The power is supplied by the mouth of the patient, if old enough, or by a member of the family. A rubber bulb can be used also, but this does not regulate the vacuum so well as the mouth. The vacuum and dry mopping are used alternately several times daily until the ear is dried at each treatment. This is one of the most satisfactory factors we possess in the treatment of cases of suppuration.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

NEW TUBERCULIN B. E. DRIED.—Tuberculinum Novum B. E. Siccum.—A solution of this is practically a bacterial vaccine. The bacteria are dried, ground for several months in a ball mill, the finely disintegrated bacillary bodies are mixed with a suitable base, similar to that employed for an ordinary hypodermic tablet. The diluent is adjusted so that each tablet represents a definite amount of New Tuberculin B. E. Dried.

Parke, Davis & Company, Detroit.

Tablets Tuberculin B. E.-P. D. & Co.—Marketed in vials No. 1 (*Bio. 474*) of ten tablets, each tablet containing 0.0001 mg. New Tuberculin B. E. Dried; in vials No. 2 (*Bio. 475*) of ten tablets, each tablet containing 0.001 mg. New Tuberculin B. E. Dried; in vials No. 3 (*Bio. 476*) of ten tablets, each tablet containing 0.01 mg. New Tuberculin B. E. Dried; in vials No. 4 (*Bio. 477*) of ten tablets, each tablet containing 0.1 mg. New Tuberculin B. E. Dried; in vials No. 5 (*Bio. 478*) of ten tablets, each tablet containing 1 mg. New Tuberculin B. E. Dried; also marketed in packages (*Bio. 473*) of 5 vials, Nos. 1, 2, 3, 4 and 5, inclusive.

NEW TUBERCULIN T. R. DRIED.—Tuberculinum Novum T. R. Siccum.—Tuberculin Residue (Dried).—The mass culture of tubercle bacteria is washed repeatedly, agitated again in water, washed, ground to complete disintegration, extracted repeatedly with water, and the water insoluble material, instead of being ground to form a suspension in water as in the case of the New Tuberculin T. R. Liquid, is dried. The dried sediment is thoroughly mixed with a suitable diluent similar to that used for hypodermic tablets, so that each tablet represents a definite amount of the dry tubercle bacilli.

Parke, Davis & Company, Detroit.

Tablets Tuberculin T. R.-P. D. & Co.—Marketed in vials No. 1 (*Bio. 504*) of ten tablets, each tablet containing 0.0001 mg. New Tuberculin T. R. Dried; in vials No. 2 (*Bio. 505*) of ten tablets, each tablet containing 0.001 mg. New Tuberculin T. R. Dried; in vials No. 3 (*Bio. 506*) of ten tablets, each tablet containing 0.01 mg. New Tuberculin T. R. Dried; in vials No. 4 (*Bio. 507*) of ten tablets, each tablet containing 0.1 mg. New Tuberculin T. R. Dried; in vials No. 5 (*Bio. 508*) of ten tablets, each tablet containing 1 mg. New Tuberculin T. R. Dried; also marketed in packages (*Bio. 503*) of 5 vials, Nos. 1, 2, 3, 4 and 5, inclusive.

Louvain University Being Reconstructed.—A part of the restored portion of the University of Louvain was opened in July. A book containing a list of Louvain students who died in the World War was the first one placed on the shelves of the library.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, OCTOBER 6, 1923

THE DEETHERIZATION OF PATIENTS

One often hears about the desirability of better mutual understanding between the clinician and the so-called laboratory worker. By the latter is meant, we presume, not the mere technician but the scientific investigator or researcher—terms which Sewall [1] recently designated as clumsy and crude. He avers that, when a purely scientific problem is solved, its spell is broken for the student. To him, "practical" results have no interest except as demonstrations of the abstract truth and progenitors of new phases of thought. The urge of the investigator is the development of truth; the direction is subsidiary.

Herein perhaps lies the challenge to the clinician to be prepared to take advantage of the latest contributions of his research confrères. We have in mind a specific illustration arising out of the physiologic laboratory. It has been clearly demonstrated in recent years that carbon dioxid is the natural stimulus to the respiratory center. When this gas is added in small quantities to the inspired air, pulmonary ventilation becomes more extensive. This fact has led to the suggestion that the property noted in carbon dioxid be utilized to secure better elimination of substances which may accumulate in undesirable amounts in the blood and which can be exhaled in gaseous form through the lungs. The toxic carbon monoxid is such a substance. Another is ether left in the blood after anesthesia.

Every physician is familiar with the undesirable postanesthetic effects of ether. They sometimes become the bane of the surgical operator's activities. As ether, being a volatile substance carried by the blood, is eliminated chiefly through the lungs, the rate of excretion must vary directly with the volume of pulmonary respiration. It has been demonstrated that more than 90 per cent. of the ether inhaled can be quantitatively recovered in the expired air. Deetherization is a purely physical process. Consequently, Henderson [2] and his co-workers at Yale suggested some time ago that carbon dioxid might find useful application in the deetherization of patients. Any device that will increase the supply of this substance should cause the breathing to go on deeply and thus promote the removal of the anesthetic. Recent attempts of White [3] to apply these principles at the Massachusetts General Hospital are gratifying. He asserts that when carbon dioxid is used to accelerate deetherization by stimulating respiration, the volume of respiration can be raised to any desired level; recovery of consciousness is from three to five times more rapid; blood pressure, circulation and color are materially improved, and nausea, vomiting and other subjective disagreeable sensations following ether anesthesia are reduced. In no instance have any signs of acidosis or other harmful effects attributable to carbon dioxid been noted. The problems of anesthesia are too complex and varied to permit hasty generalizations. Nevertheless, it seems well worth while for more clinics to give consideration to the possibilities that the physiologic laboratories have here presented to practical medicine.

1. Sewall, H.: The Beginnings of Physiological Research in America, Science **58**: 187 (Sept. 14) 1923.
2. Haggard, H. W., Coburn, R. C., and Henderson, Yandell: The Therapeutic Use of Carbon Dioxid After Anesthesia and Operation, J. A. M. A. **74**: 783 (March 20) 1920.
3. White, J. C.: Deetherization by Means of Carbon Dioxid Inhalations, Arch. Surg. **7**: 347 (Sept.) 1923.

DIETS AND FASTING IN EPILEPSY

The predominatingly toxic nature of the causes of symptomatic and experimental epilepsy leads naturally to the suspicion that some toxic substance is responsible for the fits of idiopathic or essential epilepsy. The intestine is one possible site for the origin of such toxins; it is conceivable that they could arise from faults in digestion, from fermentation produced by bacterial growth, or in other ways. The hypothesis that they arise by fermentation has led to measures directed toward changing the flora of the intestinal tract, sometimes by heroic means, but so far without lasting therapeutic success. Efforts to control epilepsy by dietary regulation have for years been attempted, and heretofore have been largely empiric. It is a common custom to limit the consumption of meat by epileptics on the assumption that excessive protein and particularly excess of purins favor the occurrence of "fits." Within the last two years, prolonged abstinence from food of all kinds has been somewhat extensively exploited as a cure for epilepsy, and has been the subject of special study. Carefully controlled investigations of the effects of variations in the quantities and composition of foods in epilepsy are therefore especially welcome.

Weeks, Renner, Allen and Wishart,[4] working with patients under complete control at the State Village for Epileptics, Stillman, N. J., have studied the effects of complete fasting and also of a nonnutritive bulk diet continued for periods of three weeks. In many cases the fits decreased in number, in some they ceased entirely, in others there was no change in frequency.

4. Weeks, D. F.; Renner, D. S.: Allen, F. M., and Wishart, Mary B.: Observations on Fasting and Diets in the Treatment of Epilepsy, J. Metabol. Res. **3**: 317 (Feb.) 1923.

In general, after the termination of the fast, the attacks recurred as frequently as before. Similar results from starvation have been reported by Goldbloom.[5] Lennox [6] observed decrease in the number of fits under similar conditions, and reports that studies of the nonprotein nitrogen in the blood, which had been uniformly within normal limits before the fast, revealed a marked increase, especially of the uric acid fraction. The conclusion, therefore, seemed justified that fits were not caused in these cases by a large excess of uric acid or other nonprotein nitrogenous compounds in the blood.

Weeks and his co-workers also studied small groups of patients who were maintained for several weeks on high protein (up to 260 gm. with 32 gm. of fat), high calory (over 8,000), high carbohydrate (from 500 to 800 gm.) and high fat (from 260 to 440 gm.) diets. They concluded that none of these diets had a demonstrable relation to the frequency of the fits. These results are somewhat disconcertingly at variance with generally prevailing opinion. They conflict with the observations reported by Cuneo, to which reference was made in an earlier editorial,[7] that the incidence of fits was much greater with a high carbohydrate than with a high protein diet.

It seems, therefore, that at present there is no justification for exploiting any particular dietary regimen for general application in the management of epilepsy. Common sense avoidance of materials that give rise to gastric or intestinal indigestion, with due regard for individual idiosyncrasies, must continue to guide the selection of the appropriate diet, in epilepsy as well as in other diseases. Particularly should it be emphasized that, while it is true that the number of fits often diminishes during a period of starvation, there is no justification for claims that this measure is in any sense a cure for epilepsy; the remarkable changes in the blood chemistry, as well as common sense, lead to the suspicion that it may be a cause of potential, if not immediate, actual damage.

THE INDIGENT MIGRATORY CONSUMPTIVE

Tuberculosis is extensively prevalent among the watchmakers of the Alps, a region which was, and still is, popular for the treatment of tuberculosis. The American Indians of the arid Southwest are especially subject to the ravages of tuberculosis, and this in a country in which they have always lived and to which tuberculous tourists in large numbers commonly resort for treatment. These statements, taken from a recent document [8] of the United States Public Health Service, seem to justify the conclusion that there is no climate possessing peculiar virtues that will prevent the development of tuberculosis. Nevertheless, for the treatment of the disease, the regions of dryness and sunshine in the western part of this continent have long enjoyed a singular popularity. No one will contend that these geographic localities are the only places where an abundance of fresh air, day and night, suitable food, and absolute rest, when required, can be secured. For many patients, the migrations westward presumably represent an effort to go where living is "easier" than in the districts of rapidly changing weather.

This is particularly true of indigent patients, to whom the Southwest represents a land of opportunity unhampered by the rigors of climate. Doubtless the saddest and most pitiful tragedies the health-resort physician can describe are those of wretched sufferers—even in a comparatively early stage of the disease—whose misguided but well-meaning friends have raised money enough to pay their fare out to Colorado, California, Arizona or New Mexico, and expect them to get work on a ranch, so as to earn their living and take the open-air treatment at the same time.

There is another aspect of the problem that is not so well recognized because it affects civic and social organizations even more than medical agencies. The indigent migratory consumptive—a person who cannot finance himself completely during the period of his cure—has been tending to become a public charge in unusual degree on a comparatively few communities, until the burden of providing for nonresident sick has attained large proportions in some of them. The financial support given cannot be determined accurately, particularly with reference to the relative participation of residents and nonresidents. As an illustration of the cost in cities where the influx is generally admitted, the total amount spent in Los Angeles for the indigent tuberculous amounts to nearly $180,000 a year, which means a per capita tax on the population of 31 cents a year, according to the government statistics.[9] In Phoenix it has reached the high maximum of $1.75 a year. A few Eastern states are responsible for most of the migration, the "big six" being, in order, Illinois, New York, Missouri, Ohio, Pennsylvania and Michigan. The statistician [9] of the National Tuberculosis Association states that none of the cities involved have anything like adequate provision—medical, relief or institutional—for caring for the tuberculous persons, whether resident or nonresident. From what can be learned from the records, it would seem that there is no attempt anywhere at a coordinated policy or program of rehabilitation of the tuberculous. The material relief facilities of these cities are incapable of adequately meeting the problem of the indigent migratory consumptive. Certain private relief organizations of national scope are already attempting to cope with the situation in a constructive way, so far as their own

5. Goldbloom, Alton: The Starvation Treatment of Epilepsy, Canadian M. A. J. **12**: 539 (Aug.) 1922.
6. Lennox, W. G.: The Chemistry of the Blood in Epilepsy, J. A. M. A. **81**: 1138 (Sept. 29) 1923.
7. Research in Epilepsy, editorial, J. A. M. A. **80**: 1939 (June 30) 1923.
8. Smith, F. C.: Tuberculosis: Its Predisposing Causes, Pub. Health Rep. **38**: 777 (April 13) 1923
9. Whitney, J. S.: A Report on the Indigent Migratory Consumptive in Certain Cities of the Southwest, Pub. Health Rep. **38**: 587 (March 23) 1923.

indigent clientele is concerned. The problem, represented by an average of one indigent tuberculous person to every 155 of the entire population of Los Angeles, El Paso, San Antonio, Phoenix, Denver and Colorado Springs, is too large to be solved by any single philanthropic association. It is a problem national in scope.

THE DREYER VACCINE

Since Prof. Georges Dreyer published the report of his work with defatted tuberculosis vaccines, the press, medical and lay, has been active in arousing new hope for the tuberculous, that the disease may be brought under specific therapeutic control. In a letter to the London *Lancet*, Fornet,[1] of the Institute of Microbiology in Saarbrücken, points out that experiments[2] made by him since 1921 have demonstrated the necessity of defatting the tubercle bacilli before using them as a specific vaccine. In this letter he states that the fat is removed from the bacterial organism by applying the vapor of ether. Fornet showed that in this process the biologic albumin of the bacilli remains intact and unaltered, and he points out that the defatted tubercle bacilli form a stable emulsion, which is specifically precipitated by the serum of tuberculous persons. It produced complement deviation when brought in contact with serum from the tuberculous, and showed remarkable effects when used as an antituberculous vaccine in men. Fornet states also that Wassermann[3] confirmed these facts, using another process of defatting the tubercle bacilli.

Fornet contends that the work of Dreyer is essentially a confirmation of his own and Professor Wassermann's observations. However, certain observations of Professor Dreyer have seemed particularly remarkable, according to Professor Fornet, namely: that the Dreyer tuberculous antigen is said to withstand exposure for four hours and more to 100 C., at which temperature it must be boiled with formaldehyd and acetone if the tubercle bacilli are to lose their acid resistance.

"Up till now," says Fornet, "bacteriologists have always carefully tried to avoid as much as possible any alteration of the antigen contained in the living microbe, the immunizing power of which is demonstrated to us daily by practical experience. That Professor Dreyer's boiled tuberculous antigen still possesses the same immunizing power is a real discovery of highest theoretical importance, unless further investigation should prove that his good results are due rather to the effect of a protein than of a real immune-therapy."

It is the contention of some observers that the beneficial results following the administration of vaccines in various conditions may be the effects of a change in the body's reaction to infection brought about by the injection of a nonspecific protein. Should the suggestion of Professor Fornet, that the action of the Dreyer antigen is essentially of this character—a possibility which cannot be denied—be confirmed, its status as a therapeutic agent in the treatment of tuberculosis would become more definitely defined.

1. Fornet, W.: Defatted Bacterial Vaccines, Lancet **2**: 586 (Sept. 15) 1923.
2. Fornet, W.: Ann. de l'Inst. Pasteur **35**: 797 (Nov.) 1921; Deutsch. Arch. f. klin. Med. **138**: 229 (Jan.) 1922; München. med. Wchnschr., May 11, 1923.
3. Wassermann: Deutsch. med. Wchnschr., March 9, 1923.

Current Comment

THE SUPPLY OF PHYSICIANS IN GREAT BRITAIN

Statistics published recently[1] show the number of physicians whose names appear each year in the British Medical Register from 1876 to 1922 inclusive, and also the number of new names added each year. In 1876 there were 22,713 names on the register. It was forty-five years before the number was doubled; that is, by 1921 the number had been increased to 45,408, and in 1922 the number had further increased to 46,477. The largest number enrolled in any year was 1,984 in 1922, followed by 1,760 in 1921, 1,579 in 1893, 1,531 in 1887, 1,526 in 1915 and 1,513 in 1892. The lowest number registered in any year since 1900 was 1,042 in 1911, followed by 1,077 in 1918. Figures are given also showing the number of registered practitioners as compared with the population of the British Isles in each tenth year beginning in 1881. Unfortunately, the total numbers of registered physicians include the names of those residing in colonial possessions and foreign countries, and are therefore not comparable with the figures for population, since the latter show the people residing in the British Isles only. We note, however, from the British Register for 1921 that of the 45,408 physicians registered, 1,781 were colonial practitioners and 132 were practicing in foreign countries, leaving 43,495 who were practicing in the British Isles. On this basis, therefore, in 1923 there was one physician for every 1,087 people. These statistics are interesting compared with the United States, where there is now one physician for every 724 people.

THE ETIOLOGY OF CHOREA

For some time, accumulating evidence has pointed to the probability that chorea is a disease of infectious origin. This conclusion was due at first to the fact that not infrequently the malady was observed to occur along with acute rheumatism, tonsillitis or endocarditis. However, even though such associations are by no means universally the case in connection with chorea, the correlation of many well substantiated facts is in support of the theory of the action of a bacterial toxin on the cortical tissues. At any rate, the day has long passed when such indefinite etiologic factors as fright or exposure to cold can be held accountable for the manifestations. Bacteriologic studies have not been wanting, and various organisms have been isolated from the blood and tissues in cases of chorea; nevertheless,

1. Brit. M. J. **2**: 355 (Sept. 1) 1923, republished, this issue, p. 1226.

Koch's postulates have not been fulfilled in connection with them. Muscular movements resembling those in chorea are reported by Rosenow [1] to develop occasionally in animals after intravenous injection of cultures of streptococci from various other diseases. Recently, however, he has isolated chorea strains of micro-organisms with which the tendency to involve heart valves, joints and muscles as well as the brain was much more marked than that of strains of streptococci from other sources. Rosenow feels justified from his work at the Mayo Foundation in concluding that chorea is due to a streptococcus having peculiar neurotropic, immunologic and other properties. Characteristic localization followed intravenous and intracerebral inoculation as well as the infection of teeth in dogs. The lesions were due to the same streptococcus, regardless of the fact that mixtures of bacteria in the suspensions and primary cultures were sometimes injected. The property on which specific localization depended was retained through three successive animal passages, after many rapidly made transfers of pure cultures, and for as long as three months in the teeth and brain of the dog. The specificity as regards both the infecting power and the immunologic properties was lost after ordinary aerobic cultivation. The symptoms produced were strikingly like those of chorea in man. The possibility of producing serum for purposes of immunization at once suggests itself, and attempts in this direction are said to be in progress at Rochester, Minn.

1. Rosenow, E. C.: Experimental Observations on the Etiology of Chorea, Am. J. Dis. Child. 26: 223 (Sept.) 1923.

THE EFFECT OF INDUSTRIAL WASTE ON WATER SUPPLY

While it is undoubtedly true that the most essential quality of a public water supply is its safety, that is, its freedom from disease-producing bacteria or other injurious elements, it is also true that palatability is an important asset. It is well known that the growth of certain algae, in themselves quite harmless, may by virtue of the resulting odors or tastes render a wholesome water quite unfit for use. It would not be a matter of indifference that a water is made entirely free from typhoid bacilli only at the expense of acquiring a disagreeable taste. This question has come to the front in connection with that highly useful and sanitary procedure, the chlorination of water supplies. For a time it was not wholly understood why chlorin treatment of certain waters not only was successful in freeing the water from intestinal bacteria, but also did not affect the palatability of the water, while in other instances the use of identical amounts of chlorin was accompanied by the production of intensely disagreeable tastes. It is now known that industrial wastes from coke plants and similar establishments contain substances reacting with chlorin to impart a characteristic and objectionable taste. There appears in some instances to be a reaction between phenol (carbolic acid) and chlorin, giving rise to chlorophenol, a substance to which the disagreeable taste is attributed. One experimenter diluted phenol to one part in 750 million, and on chlorination obtained a much more pronounced taste than with lower dilutions. It seems that the intensity of the effect is determined by the degree of concentration of both the phenol and the chlorin, and that excess of either substance may destroy the taste. The discharge of by-products waste from coke plants has at various times in the last few years caused trouble with the chlorinated water supplies of Cleveland, Milwaukee, Toronto, Indianapolis and other cities. Recently the output of a pea-canning factory was ruined for shipment by the development of a "medicinal" flavor suggestive of phenol or iodoform; this was traced to the contamination of a chlorinated water supply by the waste from a coke plant. Other causes for a similar effect may exist. One case is on record of the occurrence of these tastes in a chlorin-treated water passing through a pipe coated with coal tar, and another in the water of an elevated tank freshly painted with coal tar paint. So far as large public supplies are concerned, the main source of trouble appears to be the coke plant, and it would seem to be worth while to keep the wastes from the manufactories altogether out of the water supply. There is the obvious argument on the sanitary side that the development of a disagreeable taste in a chlorinated water tends to bring the process of chlorination itself into disrepute.

SHIP-BORNE PLAGUE IN 1922

A summary of plague infection on vessels during 1922 and December, 1921, emphasizes the necessity for constant vigilance on the part of quarantine officers. Reports to the U. S. Public Health Service for this period show that human cases of plague, or plague infected rats, were found on six ships calling at Liverpool or London, on three ships calling at Australian ports, on two ships at Egyptian ports, and on one ship calling at French, German, Italian and Philippine ports. These reports are probably not complete, but they record a sufficient amount of plague to start epidemics in a large part of the world.

BACTERIAL SYNTHESIS OF AMINO-ACIDS

The story of protein metabolism in the body has become largely a description of the transformation of the amino-acids that arise from the disintegration of the albuminous substances. The amino-acids, says Underhill,[1] must be regarded as foodstuffs capable of supplying the nitrogenous needs of the organism. The chief factors to be taken into account with regard to the nutritive value of any protein are the character and amount of the amino-acids derived from it. It has been rigorously demonstrated that some, at least, of the amino-acids bound up in the protein molecule that are indispensable to nutritive welfare cannot be synthesized by the animal organism. The body thus becomes dependent on an exogenous supply, which the plant organism is able to produce essentially from the very elements. Recently it has been ascertained, however, that certain bacteria can synthesize at least two of the most important amino-acids, tryptophan and tyrosin, from

1. Underhill, F. P.: The Physiology of the Amino Acids, New Haven, Yale University Press, 1915, p. 131.

extremely simple nitrogenous precursors, such as urea or ammonia compounds.[2] Despite the ubiquity of micro-organisms, it is unlikely that these highly important synthetic powers can be of direct moment to man, because the bacteria have comparatively little opportunity to thrive in the human body. In the ruminants, it may be quite different. Their paunch is a veritable bacterial incubator, where microbiotic changes can go on unhindered for considerable periods. Probably to certain animal species this process is not the unmixed disadvantage that it is charged with being in the human alimentary tract.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARKANSAS

Medical Meeting.—The forty-eighth annual meeting of the Mississippi Valley Medical Association will be held at Hot Springs, October 9-11. An unusually strong program has been arranged. A tour of the government reservation will be made, and a session held at the government clinic.

CALIFORNIA

Bubonic Plague in San Francisco.—A case of bubonic plague has been recently reported at San Francisco by the U. S. Public Health Service, Washington, D. C.

New Home for Children.—Through the generosity of Mrs. Henry Crocker, San Francisco, a new unit of the Stanford Home for Convalescent Children has been erected on the campus of Stanford University, Palo Alto, at a cost of $50,000, and given in perpetuity to the board of trustees. The building, which will be known as the Kate D. McLaughlin Unit, was erected as a memorial to the donor's mother. It has twenty beds.

DISTRICT OF COLUMBIA

Child Welfare Meeting.—The federal children's bureau called a conference of child welfare workers and directors of child hygiene bureaus in Washington, September 19-21. This is the first conference of this nature that has been called by the children's bureau since the passage of the Sheppard-Towner Act. Representatives from forty-four states attended the sessions.

GEORGIA

Firearms Toll in Georgia.—Through the use of firearms 2,010 persons have died in the state during the last three years, according to a report from the state bureau of statistics. This record includes 396 homicides in 1920; 405 in 1921, and 427 in 1922. During the same period there were 259 suicides by the use of firearms, and 550 persons were killed through the accidental discharge of guns and pistols.

University of Georgia News.—The board of trustees of the University of Georgia Medical Department, Augusta, were presented, July 24, with a large-sized portrait of Dr. E. F. Starr, formerly of White County, by Dr. Lamartine G. Hardman, Commerce. Dr. Starr, it is stated, was the first surgeon to perform a suprapubic operation to remove a stone from the bladder of a man. The stone, nearly the size of a hen's egg, has been preserved by Dr. Starr's daughter, and was presented to the university along with the portrait.

ILLINOIS

Personal.—Dr. Edith Lowry Lambert, St. Charles, has gone to Nevada and California for six months to organize child welfare work in those states under the auspices of the U. S. Public Health Service.——Dr. Paul W. Wipperman, Jefferson Barracks, Mo., has been appointed superintendent of the Decatur and Macon County Hospital.

Typhoid Fever in Peoria.—At a meeting of the Peoria Medical Society, September 18, Dr. R. C. Bradley, Peoria, district health supervisor of the state department of health, appealed to the city physicians for cooperation with the department to stamp out the present typhoid epidemic, which, he stated, was "becoming alarming." Since August 6, sixty cases have been discovered in Peoria and Richwoods townships.

Chicago

Personal.—Dr. James A. Britton has been appointed a member of the board of directors of the Chicago Municipal Tuberculosis Sanatorium.——Dr. Marion Hines, of the department of anatomy of the University of Chicago, has been granted a year's leave of absence, which she will spend in the laboratories of Prof. J. T. Wilson of the University of Cambridge, and Elliot Smith, of the University of London, England.——Colonel George C. Amerson, surgeon general of Illinois, will represent the Illinois National Guard at the annual meeting of the Association of Military Surgeons of the United States at Carlisle Barracks, Pa., October 4-7.——Dr. Angus M. Frew, director of physical training at the Harvard School for Boys, has been appointed superintendent of the new Juvenile Detention Home, Chicago, which will be opened, October 16.

Rush Medical College to Be Razed.—Suit was filed in the circuit court, October 1, asking approval of plans to raze the old Rush Medical College buildings at Harrison and Wood streets, and to erect a $400,000 building to be known as the Rawson Clinical Laboratories, for which Frederick H. Rawson donated the sum of $300,000. The University of Chicago, according to the plan, will take over the property and build the new laboratory. A contract between the college and the university has been tentatively adopted, pending the approval of the court. A program which provides for the expenditure of $5,300,000, gifts to the university for the advancement of medical education, is to be carried out, the bill states, includes the building of a hospital of 200 beds on the university campus.

IDAHO

Naturopath Fined.—The Idaho *Daily Statesman* reports that J. S. Charlebois, a naturopath of Boise, was fined $100 and costs recently in Judge Church's court when he was found guilty of violating the state license law. This was the first case prosecuted under the new license law. The judge stated that in the future he would give a jail sentence for all violations.

New Medical Practice Act.—At the last session of the Idaho legislature, an act was passed making it unlawful to practice any system or method of treating the sick or afflicted, other than by religious ministrations, without having a license issued by the state to practice medicine. Section 2 of the act makes it "unlawful for any person or persons to hold himself or themselves out as practicing any system or mode of treating the sick, . . . or in any sign, or in any advertisement use the words 'doctor' or 'professor,' or the letters or prefix 'Dr.' or 'Prof.' or any other term or letters indicating or implying that he is a doctor, physician and surgeon, or practitioner, without having at the time of so doing a valid unrevoked certificate or license granted by the state of Idaho to perform or prescribe such service." Fines of not more than $1,000 or one year in jail are the penalties for violation of this act.

INDIANA

Fake Practitioner Fined.—Ignatz Newalt, alleged owner of the Indiana Medical Institute, Gary, was arrested recently on a charge of practicing medicine without a license, and was fined $50 and costs by Judge Greenlee. According to Dr. E. M. Shanklin, Hammond, president of the Lake County Medical Society, this is the last of more than a dozen such institutions closed within the past two years in Lake County.

State Medical Election.—At the annual meeting of the Indiana State Medical Association in Terre Haute, September 26-28, the following officers were elected for the ensuing year: president, Dr. Samuel E. Earp, Indianapolis; vice presidents, Drs. Arthur A. Rang, Washington, Louis F. Ross, Richmond, and Jacob T. Oliphant, Farmersburg, and secretary-treasurer, Dr. Charles N. Combs (reelected). The editorship of the *Journal of the State Medical Association* was continued in the hands of Dr. Albert E. Bulson, Jr., Fort Wayne. Dr. Edwin B. McAllister, Terre Haute, president of the Vigo County Medical Society, presided and introduced Dr. Charles

2. Sjollema, B., and Van der Zande, J. E.: Concerning the Synthetic Action of Bacteria in the Paunch of the Cow, Proc. Koninklijke Akad. van Wetenschappen te Amsterdam, **25**: 482, 1922.

H. Hood, Huntington, president of the state association, who in turn introduced Dr. Charles H. Mayo, Rochester, Minn., the principal speaker. Indianapolis was selected for the 1924 meeting. The new wing of St. Anthony's Hospital was opened for the inspection of visitors who attended the sessions.

IOWA

Outbreak of Typhoid Investigated.—An outbreak of fourteen cases of typhoid fever in Oelwein was recently investigated by the state epidemiologist. With the exception of one contact case and one of unknown origin, all the cases were found to be on one milk route. No new cases have occurred since the investigation was made.

Iowa Carries Off Health Banner.—For the fourth successive year, Iowa schools have carried off first honors for the health work organized by the National Tuberculosis Association, as the Modern Health Crusade. With 300,000 school children forming health habits, and 22,000 teachers instructing them, Iowa schools won seven out of eleven first prize banners and 148 out of 422 second prize pennants, and for the third time in four years they won the silver loving cup offered by "The Friend of the Children."

KENTUCKY

Tuberculosis Sanatorium to Be Erected.—Dr. J. H. Lock, managing director of the Kentucky State Tuberculosis Association, recently announced that Jefferson County has voted a $1,000,000 bond issue for the erection of a county sanatorium for tuberculosis. The new institution will be erected at Waverly Hills, on the site northwest of the present administration building.

State Medical Meeting.—At the seventy-third annual meeting of the Kentucky State Medical Association in Crab Orchard, September 17-20, the following officers were elected for the ensuing year: president, Dr. Frank Boyd, Paducah; president-elect, Dr. John Rice Cowan, Danville, and vice presidents, Drs. Chauncey W. Dowden, Louisville, John G. Foley, Pineville, and Edmund G. Thomas, Benton. Drs. Arthur T. McCormack, Louisville, and William B. McClure, Lexington, were reelected to serve a term of five years each as secretary and treasurer, respectively. Dr. Hugh Cabot, Ann Arbor, Mich., and Dr. George E. Shambaugh, Chicago, gave addresses.

LOUISIANA

New Sanatorium Opened.—Our Lady of the Lake Sanatorium, Baton Rouge, conducted by the Sisters of St. Francis, was formally opened to the public, October 1. The building was erected at a cost of $300,000, and will have a capacity of 100 beds.

Lepers to Be Isolated.—A tent colony for the care and isolation of lepers in New Orleans committed to Carville leprosarium, but unable to proceed there because of crowded conditions, will be erected at Bourbon and St. Louis streets by the state board of health, and charged to the city, Dr. Oscar Dowling, president of the state board of health, announced, September 19 (THE JOURNAL, September 29, p. 1119).

MARYLAND

Semiannual Meeting of the Medical and Chirurgical Faculty.—The semiannual meeting of the Medical and Chirurgical Faculty of Maryland was held at Easton, September 26-27. The meeting opened with clinics at the Emergency Hospital by the members of the staff. Addresses of welcome were made by the mayor of Easton, the president of the Rotary Club and Dr. W. T. Hammond, president of the Talbot County Medical Society, responded to by Dr. Harry Friedenwald, president of the faculty. The afternoon session was followed by an oyster roast and barbecue at the Talbot Country Club. The principal meeting of the session was in the evening at the New Theater, when Dr. Hubert Work, Secretary of the Interior, and Governor Albert C. Ritchie gave addresses. Clinics were given by Dr. Hugh H. Young and Dr. Arthur M. Shipley at the Emergency Hospital. The meeting closed with a reception for the members and their guests at Hope House, the home of Mrs. William J. Starr.

Medical Survey of State Prisons.—The report of the committee of Baltimore physicians of a survey of Maryland state prisons covers the examination of methods, equipment and evident needs of the institutions, and comparison of the data with reports of conditions prevailing in the other states. The general conclusion reached was unfavorable to the medical organization of the prisons which was pronounced unsatisfactory and the equipment inadequate. The committee recommended complete reorganization, having for its general aim social progress in preventive medicine, including on the one hand medical science whose diagnostic and therapeutic contribution, rendered before it is too late, tends to correct and restrain both mental and physical tendencies toward delinquency; and on the other hand social science, which tends to raise standards of life among the masses. It was said that the proposed plan would require $11,800 per year, an increase of $3,600 over the medical expenditure for last year. It was also recommended to study the physique, intellect and character of each prisoner and to inquire into the environmental factors that have impelled him to commit crime.

MICHIGAN

Diphtheria Quarantine Lifted.—Quarantine was lifted, September 14, for the last case of diphtheria in Holland. Three cases of scarlet fever and eight cases of smallpox in one family are still in quarantine. Two arrests were made, September 13, for breaking quarantine regulations, but the cases were nolle prossed when the defendants were arraigned in court.

MINNESOTA

Free Health Clinics.—Fifty health clinics each week will be operated in Minneapolis this autumn by health agencies supported by the community fund, it was announced, September 21, by the secretary of the Minneapolis Council of Social Agencies. During the past year 46,984 children and adults have been given aid at these clinics which are free to all unable to pay for the service given.

MISSISSIPPI

New Hospital Facilities.—A building leased by Drs. Thomas D. Bourdeaux and Franklin G. Riley at Meridan will be converted into a hospital in October. The new institution will be known as the Bourdeaux-Riley Hospital. Miss Edna Baker will be superintendent.——The Clarksdale Hospital, Clarksdale, was formally opened, September 17.——A ward for the accommodation of twenty tuberculous patients from Forrest County will be erected at the Mississippi State Tuberculosis Sanatorium, Magee, as soon as possible.

MISSOURI

Spiritualist Fined.—It is reported that Otto A. Schultz, St. Louis, a "spiritualist healer," was found guilty of practicing medicine without a license, September 19, and sentenced to ninety days in the workhouse.

Trachoma Clinic.—A trachoma clinic will be held in New Madrid County, in October, under the auspices of the medical association and in cooperation with the state board of health. It is stated that 20 per cent. of blindness in Missouri is due to trachoma.

New Dean Appointed.—Dr. William M. Marriott, chief of the department of diseases of children, Washington University Medical School, St. Louis, has been appointed dean of the school to succeed Dr. Nathaniel Allison, who becomes professor of orthopedic surgery at Harvard University Medical School, Boston.

Governor Names Health Delegates.—Governor Hyde has appointed Dr. Emmett P. North, St. Louis, president of the state board of health, and Dr. Cortez F. Enloe, Jefferson City, secretary of the state board of health, as delegates from Missouri to the fifty-second annual meeting of the American Public Health Association at Boston, October 8-11.

Society News.—The annual golf tournament of the members of the St. Louis Medical Society was held at Midland Valley Country Club, October 5.——The Rock Island Surgical Association held its annual meeting at Kansas City, September 13. About 200 physicians attended the meeting. Clinics were held at the Kansas City General Hospital, Drs. John L. Porter, Chicago, and Clarence B. Francisco, Kansas City, demonstrating cases.——The Jackson County Medical Society held its annual golf tournament at the Blue Hills Club, September 28. ——The second meeting of the Missouri Conference of the Catholic Hospital Association of the United States and Canada was held in St. Louis, September 11-13. Sessions were held at the St. Louis University School of Medicine with addresses of welcome by Rev. Charles Cloud, regent of

the university; Dr. William Vogt, president of the St. Louis Medical Society, and Dr. Herman E. Pearse, Kansas City, chairman committee on hospitals, Missouri State Medical Association.

NEW JERSEY

Hospital Construction.—A new fifty-bed hospital building has recently been completed at Irvington.——A drive for $50,000 is under way for the Christian Sanatorium, Midland Park.——The contract has been let for the erection of a $60,000 nurses' home for the Monmouth Memorial Hospital, Long Branch.

NEW YORK

Typhoid Fever in Islip.—In one week there have been twelve cases of typhoid fever reported in the town of Islip, L. I. Although the victims all used milk from a local dairy, investigation has disclosed no responsibility for the typhoid. The water supply is also regarded as above suspicion by the health officers.

Housing of Insane Patients.—A booklet is being distributed by the Citizens' Committee on Protection of the State's Unfortunates, appointed by the state charities aid association asking the public to vote "yes" on the $50,000,000 bond issue for safe state institutions. It is stated that the institutions are overcrowded and that 90 per cent. of the buildings are fire hazards.

New Building for Medical Society.—At a meeting of the Queensboro Medical Society, Brooklyn, September 25, the committee appointed to seek a site for the future home of the society reported that a ten-lot site had been found at Queens Boulevard at Seventy-Sixth Road, Woodhaven, at $1,500 a lot. The recommendation to buy the site at once was unanimously adopted.

Public Health News.—Dr. Mattias Nicoll, Jr., state commissioner of health, recently announced that a series of district conferences for health officers will be held at the city hall, Albany, beginning October 5. Similar conferences will be called by the state department of health in other parts of the state in the near future.——Nearly 100 nurses have enrolled for the second correspondence course in public health nursing to be held early in October, at Bellevue Hospital Medical College, New York, in cooperation with the New York State Department of Health. Owing to limited facilities, this year's course will be restricted in numbers to 250. The public health council of New York early this year enacted a regulation effective, Jan. 1, 1924, which requires that all public health nurses employed by county or municipal authorities after the date shall have completed a course of instruction in public health nursing approved by the public health council.

New York City

Harvey Society Lecture.—The first Harvey Society lecture of the season will be delivered by Dr. A. Biedl, professor of experimental pathology at the University of Prague, at the New York Academy of Medicine, October 13. His subject will be "Organotherapy."

Academy of Medicine Opens Season.—The first meeting of the season was held on the evening of October 4, when Prof. Walter B. Cannon, of Harvard Medical School, Boston, delivered the Carpenter lecture on "A Consideration of the Nature and Treatment of Traumatic Shock."

Pediatric Societies Hold Joint Meeting.—The joint meeting of the New England Pediatric Society, the Philadelphia Pediatric Society and the Section on Pediatrics of the New York Academy of Medicine will be held in Boston, October 20. There will be no meeting during October of the section on pediatrics of the New York Academy of Medicine.

Hospital Information Bureau Reports.—The United Hospital Information Bureau, established by the United Hospital Fund in April, 1922, has made public its first annual report. The bureau has made surveys of eighteen hospitals and found that there is a widespread movement for standardization. During the year there were 945 requests for information, 35 per cent. being from hospital authorities, 25 per cent. from social and civic organizations and 40 per cent. from private individuals. One of the most frequent requests was for information regarding hospital charges. The bureau finds that there is considerable difference in the charges of various hospitals for similar services.

Personal.—Dr. L. Emmett Holt, vice president of the American Child Health Association, has been assigned as visiting professor of pediatrics to the Peking (China) Union Medical College, by the Rockefeller Foundation. Dr. Holt, who is already on his way to the Orient, will conduct a three months' series of lectures, beginning in October, introducing to Chinese physicians the latest methods in child culture. Dr. Holt will also make a survey of child health methods as practiced in various countries and return to New York next summer.—— On the occasion of the Pasteur centenary, France conferred on Dr. Simon Flexner, director of the Rockefeller Institute for Medical Research, New York, the rank of Commandeur of the Legion of Honor.——Dr. Richard A. Rendich, Jr., has been elected secretary of the New York Celtic Medical Society.

Public Health Lectures.—The Public Health Education Committee of the Medical Society of the County of New York, in cooperation with the New York Academy of Medicine, announces a course of lectures on health education and the prevention of disease, which will be delivered at the New York Academy of Medicine during the period between Oct. 29 and Dec. 5, 1923. The subjects of the lectures and the speakers are as follows: October 29, "Mental Disease as a State Problem," by Dr. C. Floyd Haviland, Albany; November 7, "One of the Developments of Modern Medicine—Treatment of Diabetes with Insulin," by Dr. Henry R. Geyelin; November 14, "The Nostrum and the Public Health," by Dr. Arthur J. Cramp, Chicago; November 19, "Glands of Internal Secretion," by Dr. Walter Timme, and December 5, "Eugenics," by H. H. Laughlin, Cold Springs Harbor. All of the meetings at which these lectures will be delivered will begin at 8 p. m. Dr. Josephine Hemenway Kenyon is chairman of the Public Health Education Committee.

OHIO

Chiropractors Released from Jail.—According to reports, R. H. Farrell and R. B. Colbert, two Toledo chiropractors, who went to jail with twenty-three others rather than pay fines assessed against them for practicing without a license, were released from the county jail when they signed an agreement not to practice until they are qualified by state license to do so. Twelve others, who have not paid their fines or signed the agreement not to practice, are still in jail.——J. W. and W. D. Reinhart, former Findlay chiropractors, have been released from jail where they were confined on their refusal to pay fines for practicing medicine without a license.

Personal.—Dr. Frank G. Hornung, Hamilton, has resigned as district physician.——Dr. Mason R. Pratt, formerly superintendent of the Aultman Hospital, Canton, has been appointed superintendent of the Union Hospital, Fall River, Mass.—— Dr. Jerome G. Pace, Woodmen, Colo., has been elected superintendent of the Lima District Tuberculosis Hospital to succeed Dr. Charles A. Files of Van Wert, who resigned to resume private practice. Dr. Jerome V. Pace, son of the new superintendent, has been appointed pathologist to the institution.——Dr. Charles A. Langdale, associate professor of clinical surgery, University of Cincinnati College of Medicine, has resigned after sixteen years of service to resume private practice.

PENNSYLVANIA

Society Celebrates Anniversary.—The Bucks County Medical Society celebrated its seventy-fifth anniversary, September 19, at Doylestown, under the presidency of Dr. John A. Weirbach, Quakerstown. A diamond jubilee luncheon was served at the Doylestown Country Club, and in the evening a banquet was held at the Fountain House. Among the speakers were Drs. Hobart A. Hare, Philadelphia; Howard Pursell, Bristol; Frederick L. Van Sickle, Harrisburg; John B. Deaver, Philadelphia, and Walter H. Brown, Youngwood.

Philadelphia

Insulin Donation.—It was announced by the provost of the University of Pennsylvania Medical School, September 25, that John D. Rockefeller, Jr., had given $10,000 to the university to be used for the purpose of treating with insulin a larger number of public ward and dispensary patients suffering from diabetes, and to teach physicians in general practice the proper method of employing insulin in the treatment of the disease.

University News.—Dr. Alexander Randall has been placed in charge of genito-urinary surgery at the University of Pennsylvania Medical School, to succeed Dr. Thomas R. Neilsen, who resigned recently, and Meikel M. Jacobs, Ph.D., has been appointed professor of general physiology.——Alfred

N. Richards, Ph.D., professor of pharmacology; Dr. William H. F. Addison, professor of histology and embryology; Samuel Goldschmidt, Ph.D., assistant professor of physiology; Dr. Joseph T. Wearn, instructor in pharmacology; Dr. Leon Jonas, of the William Pepper Clinical Laboratory, and Dr. Arthur B. Light, instructor in physiology at the University of Pennsylvania Medical School, attended the recent International Congress of Physiology at Edinburgh, Scotland.

Woman's Medical College of Philadelphia.—With a large student enrolment, and a completely reorganized faculty, the Woman's Medical College of Pennsylvania opened for the seventy-fourth year, September 26. Dr. Martha Tracy is dean of the college. Among recent appointments made are: Dr. Howard A. McKnight, associate professor of surgery and a member of the surgical staff at the hospital; Dr. Eugene C. Murphy, lecturer in applied surgical anatomy, and Dr. Lola D. McLatchie, chief of bacteriology at the Sick Children's Hospital, Montreal, Canada, who has been appointed associate professor of bacteriology and will conduct courses under the supervision of Dr. Maude E. S. Abbott, who recently joined the college from McGill University Faculty of Medicine, Montreal.

UTAH

Roentgenologists Meet.—A meeting of the Utah Society of Radiology and Physiotherapy was held in Salt Lake City, September 18, under the presidency of Dr. Mark Brown. The next meeting, to be held in six months, will take place in Ogden.

VERMONT

Vermont State Medical Society.—The one hundred and tenth annual meeting of the state medical society will be held at Bennington, October 11-12, under the presidency of Dr. John A. Stevenson, Chester. Dr. Wendell C. Phillips, New York, Chairman of the Board of Trustees of the American Medical Association; Dr. Milton J. Rosenau, Boston, and Howard N. Kingsford, Hanover, president of the New Hampshire Medical Society, are among the visiting members who will give addresses.

VIRGINIA

Foreign Health Officers Inspection.—Eight health officers of foreign countries attending the International Health Conference, which convened, September 10, in Washington, D. C., went to Richmond, September 23, to participate in a ten days' program. They will remain in Virginia one month, studying the organization and administration of the health work of the state (THE JOURNAL, September 22, p. 1033).

Personal.—Drs. Isaac Peirce, Tazewell, and Achilles L. Tynes, Staunton, have been appointed members of the Virginia State Board of Health.——Dr. James E. Wood, Charlottesville, has been elected instructor in internal medicine at the University of Virginia.——Drs. C. Bernard Pritchett and Samuel R. Newman were elected president and secretary-treasurer, respectively, of the Danville Academy of Medicine at Danville, September 11.

WASHINGTON

Personal.—Dr. Karl S. Staatz has been appointed superintendent of the County Hospital, Tacoma, and county physician.——Dr. Frances O. Houston, Spokane, has sailed for Japan to take charge of a women's and children's clinic in a portion of the devastated area.——Dr. H. L. Hill, Walla Walla, has been appointed in charge of Oakhurst Sanatorium, Elma, to succeed Dr. Raymond J. Cary, who has left to reside in Long Beach, Calif.——Dr. Charles L. Hawk, formerly connected with the Northern State Hospital, Sedro-Wooley, has been appointed in charge of the hospital at Kennicott, Alaska.

Public Health Meeting.—At the annual meeting of the Public Health League of Washington in Spokane, September 19-21, Dr. Horace J. Whitacre, Tacoma, was reelected president. Dr. E. Weldon Young, Seattle, was appointed chairman of the executive committee. The league officially launched a goiter campaign to be conducted through the schools of the state, which calls for administering iodin chocolate tablets each week of the school year to school children. These are to cost parents 50 cents a year per child, and are to be given by the school nurse, health officer or deputy health officer. Drs. George A. Dowling, Seattle; Henry W. Partlow, Olympia; Lyle A. Greenwood, Bellingham; Peter D. McCornack, Spokane, and Alfred J. Helton, Seattle, were elected vice presidents of the league.

WISCONSIN

Insulin Courses at Wisconsin University.—The clinical staff of the University of Wisconsin Medical School, Madison, announces a six-day course of instruction in the use of insulin at the Bradley Memorial Hospital, beginning October 8-13. The course will be given to groups of not more than six physicians at a time, and will include lectures on the chemistry of diabetes, and carbohydrate metabolism, the pathology of diabetes, the dietetic control of the disease, the use of insulin in the usual types, and in the complications and emergencies. There will also be a series of classes in the prescribing and calculating of diets. There will be no tuition fee for the course. The only charge will be a laboratory fee of $5 for the week. The course will be repeated weekly while the enrolment justifies it. Applications should be addressed to Dr. E. L. Severinghaus, Bradley Memorial Hospital, Madison.

Society News.—Dr. John T. Rogers, St. Paul, spoke on "Visceroptotics in Surgery," before the Barron County Medical Society at Barron, September 4.——Dr. Frank A. Boeckmann, Greenwood, and Dr. Russel R. Rath, Granton, were elected president and secretary, respectively, of the Clark County Medical Society at Neillsville, August 24.——Members of the Douglas County Medical Society were dinner guests of Dr. George Saunders at his summer home at Solon Springs, August 29. Mr. J. G. Crownhart, Milwaukee, secretary of the state medical society, gave an address.——At a meeting of the Juneau County Medical Society at Mauston, August 17, it was voted to support a clinic soon to be held under the auspices of the American Red Cross.——Dr. Milton M. Portis, Chicago, gave an address before the members of the Walworth County Medical Society at Lake Geneva, August 24.——The Green Lake County Medical Society recently arranged for meetings to be held at Green Lake, Brandon, Princeton, Berlin and Ripon, the purpose of which is to give graduate instruction to physicians residing in a given locality, with practical demonstrations of the new methods of diagnosing and treating disease.

CANADA

Quebec Medical Association.—At the annual meeting, Dr. William G. Reilly, Montreal, was appointed president of the Province of Quebec Medical Association; Dr. Zéphyr Rhéaume, Montreal, and Dr. Daignault, Quebec, vice presidents, and joint secretaries, Drs. J. U. Gariepy and D. Grant Campbell.

Hospitals Merged.—With the merging of the Montreal Maternity Hospital with the Royal Victoria Hospital and the proposed erection in the grounds of the latter institution of the Royal Victoria Montreal Maternity Pavilion, the hospital teaching facilities of McGill University Faculty of Medicine will be greatly increased. There will probably be receiving stations in various parts of the city later.

Personal.—Dr. Donald McD. Robertson, superintendent of the County of Carleton Protestant General Hospital, Ottawa, has been appointed superintendent of the new Civic Hospital of Ottawa, which is being erected at a cost of $3,000,000. Dr. Robertson will continue with the Carleton Hospital until August, 1924, when the new institution is expected to be ready for occupancy.——Dr. Joseph A. Gilchrist, Toronto, was the guest of honor of the Mahoning County Medical Society at Youngstown, Ohio, September 18.——Dr. Edward W. Archibald has been appointed professor of surgery and chairman of the surgical department in McGill University Faculty of Medicine.——Dr. Roy P. Smith, Hamilton, spoke on "Problems of Infant Feeding" before the York County Medical Society at Mount Albert, Ont., recently.——Dr. Charles F. Martin has been appointed dean of McGill University Faculty of Medicine to succeed Dr. George E. Armstrong.——Dr. George D. Porter, Toronto, has been appointed head physical director at the University of Toronto to succeed Dr. James W. Barton, who resigned last spring.

GENERAL

American Occupational Therapy Association.—The annual meeting of the association will be held in Milwaukee, October 30-November 1, under the presidency of Thomas B. Kidner, National Tuberculosis Association, New York. The National Military Home will be inspected, October 31. Major Benjamin E. Hedding, chief of tuberculosis service at the home, will speak on "Is It Occupational Therapy?" After the close

of the sessions in Milwaukee, members are invited by the Illinois occupational therapists to visit Chicago hospitals.

Southern Medical Association.—The association will hold its seventeenth annual meeting in Washington, D. C., November 12-15, under the presidency of Dr. Waller S. Leathers, secretary, Mississippi State Board of Health. Dr. George E. Vincent, president of the Rockefeller Foundation, New York, and Dr. W. S. Rankin, state health officer of North Carolina, will address the meeting. The oration on medicine will be delivered by Dr. Stewart R. Roberts, Atlanta, Ga., and the oration on surgery by Dr. J. W. Barksdale, Mississippi. This society includes sixteen states.

National Hospital Day Committee.—At the invitation of the executive secretary of the American Hospital Association, the National Hospital Day Committee will have a display at the association convention in Milwaukee, October 29- November 2, showing what hospitals throughout the United States and Canada have done on National Hospital Day to win greater community interest and support. Hospitals desiring to exhibit photographs, posters, literature and other things in this booth should communicate with Matthew O. Foley, secretary, 537 South Dearborn Street, Chicago.

Pharmaceutical Association's Research Awards.—At the seventy-first annual meeting of the American Pharmaceutical Association held recently in Asheville, N. C., the following grants were made from its research fund for the year 1923-1924:

To E. Kermers and K. H. Rang, of the University of Wisconsin, for work on decolorized tincture of iodin and on such other preparations of the National Formulary as time permits, $250.

To W. J. McGill, of the University of Michigan, for work on the electrometric titration of alkaloids, $200.

These research grants are made annually by the association from the interest accruing from the research fund.

Woman's Auxiliary of National Association.—The first annual meeting of the Woman's Auxiliary to the American Medical Association was held in San Francisco, July 28, under the presidency of Mrs. Samuel C. Red, Houston, Texas. The initial meeting was held in St. Louis, May 26, 1922. Mrs. Seale Harris, Birmingham, Ala., presented the suggested constitution and by-laws, which were adopted with a few minor changes. Mrs. W. A. Wood, Waco, Texas, is recording secretary. Drs. Seale Harris, Birmingham, Ala., Southgate Leigh, Norfolk, Va., and John O. McReynolds, Dallas, Texas, gave addresses at the meeting.

American Public Health Convention.—The fifty-second annual meeting of the American Public Health Association will be held in Boston, October 8-11, with headquarters at the Copley Plaza Hotel. This meeting is of special interest, since it ends the first twelve months of the new program adopted as a result of the association's reorganization in 1922. Two general sessions and twenty-six meetings of the scientific sessions will be held this year. October 10, Sir Thomas Oliver of London, England, and Dr. George E. Vincent, president of the Rockefeller Foundation, will address the meeting. The scientific program, embracing all branches of public health, will be held according to sections as follows: public health administration, laboratory, sanitary engineering, vital statistics, child hygiene, food and drugs, industrial hygiene, public health nursing, health education and publicity. The committee on municipal health department practice will discuss the announced plan for the awards of the public health association to cities for distinctive community service. Members traveling by rail to Boston may secure a reduction of one fourth the regular round-trip rate.

Cities Increase Outlay for Health.—In an analysis of health department budgets by W. Thurber Fales of the School of Hygiene and Public Health of Johns Hopkins University, Baltimore, the average for forty-five cities showed a 95 per cent. increase in per capita appropriations from 1910 to 1920. The expense for health departments in 1920 was 70.4 cents per capita. The greatest increase was in cities of 250,000 to 500,000 population, averaging 125 per cent. Two items—infant welfare and school hygiene—indicate an awakening of the nation to the importance of giving children a better chance to be healthful, while every city showed an increase in its health department budget. Milwaukee, with 343 per cent. increase, headed the list; Elizabeth, N. J., showed a 25 per cent. increase, according to Mr. Fales' figures. Health departments of eighty-one cities surveyed revealed per capita expenditures for all purposes except construction or additions to buildings of 97.4 cents. Health service funds for activities dealing directly with the protection of public health aside from the cost of hospitals for communicable diseases and sanatoriums averaged 51.6 cents per capita.

American Field Service Fellowships.—The Society for American Field Service Fellowships for French Universities will offer for open competition among graduates of American colleges and other suitably qualified candidates a number of fellowships, not to exceed ten, to encourage advanced study and research in French universities during 1924-1925. The fellowships, of the annual value of $1,200, are granted for one year and are renewable for a second year. There are thirty-one subjects, including medicine and surgery, for which the fellowships will be awarded. The Fellows will be required to sail to France not later than July 1 of the year in which the award is made, to matriculate in a French university for the following session, and to pursue studies in the field of science designated in their awards. Applicants must be citizens of the United States, between 20 and 30 years of age, and must at the time of application be: (1) graduates of a college requiring four years of study for a degree based on fourteen units of high school work; or (2), graduates of a professional school requiring three years of study for a degree; or (3), if not qualified in either of these ways, must be 24 years of age and have spent five years in an industrial establishment requiring technical skill. Application blanks and further information may be obtained from the secretary, Dr. I. L. Kandel, 525 West One Hundred and Twentieth Street, New York. These fellowships were established in order to provide an enduring memorial for the 127 field service men who gave their lives in the World War, and in order to perpetuate among future generations of French and American youth the mutual understanding and fraternity of spirit which marked their relations during the war.

LATIN AMERICA

Changes in University Management at Havana.—The *Vida Nueva*, just received, states that the president of Cuba has issued an order establishing a university governing assembly. It is to consist of thirty professors, thirty alumni and thirty students, and this body will have charge of the management of the university. The text of the decree is given in full.

Hospital News.—A new hospital is under construction at Puerto Castilla to replace the one now in operation. The new institution will have approximately 240 beds.——Public hospitals in Peru are owned and controlled by national benevolent societies (Sociedad de Beneficencia Publica), which exist in all the capitals of the provinces of the republic. They are largely charity hospitals with limited pay wards and are supported by revenue received from lotteries and real estate donated to the institutions by the government. Most of their hospital supplies are purchased in the United States. The army hospital and subordinate hospitals are under the supervision of the health department of the Peruvian army and navy.

FOREIGN

New Roentgen Ray Institute.—Messrs. Siemens and Halske, electrical engineers, have presented the city of Berlin with a modern radiographic institute, fully equipped, and have undertaken to replace any apparatus as soon as a new invention has made it obsolete. The institute will be established in the Moabit Hospital.

Lebanon Hospital.—Great Britain, America, Holland and Switzerland all share in the work of the Lebanon Hospital for Mental Diseases, Asfuriyeh, Beyrout, Syria. The annual report (ending March 31, 1923) of the institution has just been issued by Dr. H. Watson Smith, the medical director. During the year there were 279 patients under treatment. The recent opening of the Strawbridge Memorial House for Women relieved the congestion in the American and Philadelphia pavilions. The institution is badly in need of a permanent and adequate water supply and a roentgen-ray plant.

Tuberculosis in Belfast.—The annual report of the chief tuberculosis officer, Belfast, shows that the death rate from tuberculosis in that city for 1922 was 1.5 per thousand. This represents a reduction of 45 per cent. as compared with the year 1918, and a reduction of 68 per cent. as compared with the year 1890. The influence of housing is shown by the fact that in 62 per cent. of the new cases examined, the conditions were reported as under average. Discharged soldiers showed a large proportion. The open-air school for children living in contact with tuberculosis has been attended with great success.

Valsalva's Bicentenary and the Therapeutic Use of His Experiment.—The town of Imola in Italy celebrated, Septem-

ber 23, the two hundredth anniversary of the death of Antonio Maria Valsalva, professor of anatomy at the University of Bologna. He was Malpighi's favorite pupil, and recorded numerous observations which Morgagni included in his great work. His name is familiar from "Valsalva's experiment," and G. Galli, in the current *Gazzetta degli ospedali*, calls attention to the effect on the heart of the inflation of the eustachian tube by forcible expiration while the nose and mouth are closed. He has found that it arrested paroxysmal tachycardia.

Japanese Health Statistics.—According to official statistics, there were 1,990,876 childbirths and 1,288,570 deaths in Japan during 1922. The death rate is particularly high among infants, 423,477 under two years having died during the year. An investigation made in 1921 disclosed that there were 5,808 deaths among 166,000 children and 10,453 deaths in 65,003 childbirths.——Following an investigation of health conditions of 228,000 primary school children made recently by the section of school affairs of Tokyo municipality, twenty-six out of every 100 children are of unhealthy development, four are undernourished, sixteen require constant supervision and fifty-four were pronounced healthy.

Edinburgh University.—Considerable changes in the course of study for medical students have been introduced at the University of Edinburgh, Scotland, as a result of relegating inorganic chemistry and physics to a preliminary examination which must be passed before the student registers for medical studies. The period thus gained is to be devoted toward utilizing the latter part of the curriculum for a more intensive study of medical subjects proper, as distinguished from the subjects of general medical science, such as physiology, anatomy, pharmacology and pathology. In the fourth year, every individual student will have three periods of three months each concentrated successively on the study of clinical medicine, clinical surgery and clinical specialties. During the fifth year, there will be no systematic lectures to attend. The new arrangement goes into effect this October.

Medical Men and Alcohol.—A committee was appointed to draw up plans for the formulation of an International Federation of Medical Abstainers at the International Congress Against Alcoholism held in Copenhagen, August 19-24. A constitution was agreed on which will be submitted to the existing societies of medical abstainers in other countries. The object of the federation is to unite these societies (1) to promote total abstinence in the medical profession; (2) to study alcohol and alcoholism, and (3) to organize the scientific attack on alcoholism. The federation would hold its principal meetings with the International Congress Against Alcoholism, but would also meet at international medical congresses. Members of the committee are Dr. Holitscher (Czechoslovakia), Dr. C. F. Harford (England), Dr. M. Legrain (France), Dr. Kh. Neytcheff (Bulgaria) and Prof. R. Vogt (Norway).

International Red Cross Conference.—The eleventh International Conference of Red Cross Societies, organized by the International Red Cross Committee of Geneva, was held in that city, August 28-September 1, Monsieur Ador presided. Dr. Depage of the Belgian Red Cross Society read a letter from the three delegates of the United States, indicating their reasons for not attending the conference (THE JOURNAL, September 8, p. 839). A committee of fifteen was appointed to study the question of amalgamation of the society with the League of Red Cross Societies, and report on it by June, 1924. Delegates from each Red Cross society gave a summary of the work carried out by his society since the last international conference in April, 1921. Delegates from forty-four national Red Cross societies, and from thirty-eight governments, and twenty-two representatives of charitable and humane societies attended the conference by invitation.

Army Medical Service in Ireland.—An interesting account of the formation and rise of the Army Medical Services in the Irish Free State is given in a recent publication of the organization of the different services. The present strength of the medical corps is: one major-general who is a director of medical services, three colonels, seven commandants, twenty-five captains, seventy-nine lieutenants, eleven dentists and twelve chemists. A badge has been designed and is being issued to all officers in the medical corps. The following is a description of the badge:

> It consists of a silver hand inset in a bronze oval. The silver hand recalls the tradition that Nuadad, chieftain of the Tuatha de Danaan, lost his hand in the battle of South Moytura, near Cong, about 1000 B. C. The loss of a limb constituted so serious a blemish in those days that a maimed person could not be king, and consequently Nuadad had an artificial hand of silver made by the artificer, Credne Ceard, and fitted by the physician, Diancecht, so that he might succeed to the sovereignty. For that reason he was known as "Nuadad Airgead Lamh." The bronze oval consists laterally of a staff, round which a serpent is twined.

Personal.—Sir Malcolm Morris and Dr. James Stowers have been appointed consulting physicians to St. John's Hospital for Skin Diseases, London, England.——Sir William Joynson-Hicks, formerly postmaster-general, has been appointed minister of health for Great Britain to succeed Mr. Neville Chamberlain.——Robert W. Hart, Passed Assistant Surgeon, U. S. Public Health Service, has been relieved from duty at Hamburg, Germany, and assigned to duty at Manila, P. I.——Surg. Joseph G. Wilson, U. S. Public Health Service, relieved from duty at Bremen, Germany, has been assigned to duty at Hamburg.——The *Münchener medizinische Wochenschrift* states that Dr. R. Kraus, director of the Instituto de Butantan at S. Paulo, Brazil, has resigned his position and is returning to Vienna.——The *Marseille médical* reports that Dr. Darcourt, radiologist for twenty years to the Marseilles hospitals, has had to have a finger amputated on account of roentgen-ray injuries, which are extending. The local medical society has petitioned the government for official recognition of his devotion to science.——The Masnata prize was conferred by the association of health officers in Italy on Dr. Bergamaschi of Pavia for two works presented dealing with medical practice.

The Internal Medicine Congress of the Northland.—The eleventh Scandinavian Congress for Internal Medicine was held at Christiania recently, with Prof. P. F. Holst in the chair, and 200 attending. A number of the fifty-five communications were on the thyroid, Eggers Møller, Denmark, reporting increase in the basal metabolism up to 110 per cent. in his study of fifty-two cases of exophthalmic goiter mostly before and after roentgen treatment. Hagedorn reported the subsidence of colloid goiters under iodin treatment. He theorizes that the colloid results from the excessive functioning of the thyroid as a reaction to the lack of thyrotoxin. The colloid thus produced cannot be utilized by the tissues, and thus it collects in the thyroid. If either iodin or thyroxin is supplied to the gland, excessive function is no longer necessary, and the colloid disappears in time. Nicolaysen told of his success with quinin in the treatment of pneumonia, which had reduced the mortality from 20 to 6 per cent. A. Krogh opened the lively discussion on the insulin treatment of diabetes. Jacobsen insisted on the necessity for frequent examination of the blood during insulin treatment to avoid giving too much. Kylin's paper on essential hypertension elicited much discussion, a number not accepting his views. Prof. Israel Holmgren was elected to preside at the next congress, to be held at Stockholm in 1925.

Intoxicated Motor Drivers.—A law has been passed in Denmark ruling that a motorist once convicted for drunkenness while driving must lose his license permanently. Owing to there being no hard-and-fast line between severe and slight intoxication, the police realized that certain standards and criteria would have to be formulated. The Danish Medico-Legal Council was asked to aid, as it was felt by the police that in cases of alleged drunkenness in drivers, a medical examination is essential. Prof. A. Wimmer and a pharmacologist were appointed to make the examinations. The following program was devised by the medicolegal council as a guide to the examining police surgeon:

1. Observe the driver's appearance. Drowsiness, drooping eyelids, relaxed features, congestion of the face and conjunctivae, sweating, slobbering, disordered dress and the like should be noticed.
2. Observe his behavior. Noisiness, silly behavior, excitation, garrulity, restlessness and other characteristics should be noticed.
3. Is his sense of time and space natural? If it is, say "Yes"; if not, repeat his statements.
4. Test his memory. Note if he can remember a couple of addresses, and test his ability to describe something, i. e., how the motor accident happened, or the meaning of a drawing in an illustrated paper.
5. Note his speech; is it thick, nasal, lisping or stammering? Let him repeat difficult words or read aloud a short notice in a paper.
6. Note his gait. Swaying and ataxia should be noticed, and Romberg's test should be carried out.
7. Test the movements of his hands and also his handwriting, telling him to write his name, age, station in life and address on a sheet of paper.
8. Note if his pulse is regular and rapid, the condition of his pupils and his response to painful stimuli.
9. Note if he smells of alcohol.
10. Are there signs of other diseases, such as epilepsy and apoplexy?

Of fifty cases recently examined, all the drivers were men. There were thirty-four professional chauffeurs, and only nine of the fifty were discharged as sober.

Deaths in Other Countries

Dr. Edwin Wheeler, a graduate of Queen's University, Ireland; member of the British Medical Association, and one of

the oldest English residents in Japan, was reported killed in the recent earthquake in Yokohama.——Dr. **Walter S. Cheyne,** dean of the profession in Aberdeen, Scotland, died, August 19, aged 70.——The Rev. **D. W. Torrance,** medical missionary of the United Free Church of Scotland, at Tiberias, Palestine. ——Dr. **Jenaro Sisto,** professor of pediatrics at the University of Buenos Aires, a leader in the organization of the profession, and author of works on his specialty. He shared with Frouin and Fiessinger the Perron prize awarded by the Académie de médecine at Paris in 1910.——Dr. **L. Borri,** professor of legal medicine at the University of Florence.——Dr. **F. Schlemmer,** privatdozent of laryngology at the University of Vienna, aged 39.——Dr. **D. Romeijn,** a military medical officer of high rank in the Netherlands until his resignation in 1919 to become medical inspector of the railroads. He published recently a booklet on "Railroad Hygiene in the Netherlands."——The *Crónica Médico-Quirúrgica* of Havana mentions the death at an advanced age of Dr. **Carlos Scull,** physician to the Casa de Socorros del Vedado; also of Dr. **Francisco Marill y Solar,** an official of the Policlínica Nacional Cubana, and of Dr. **Ramón Garganta y Puig.**

Government Services

Veterans' Hospital to Be Discontinued

No new patients will be sent to U. S. Veterans' Hospital No. 26, Camp Sevier, Greenville, N. C., it was recently announced. It is expected that the institution will soon be closed and the patients transferred to U. S. Veterans' Hospital No. 60, Oteen, N. C., where there are approximately 300 vacant beds. The Camp Sevier Hospital was established in 1919, and has a bed capacity of 700.

Examination of Ex-Service Men

A total of 6,610 medical examinations were given disabled veterans of the World War in Minnesota, North Dakota, South Dakota and Montana during July by the U. S. Veterans' Bureau, according to a recent report. In addition, the bureau acted on 1,433 compensation claims in the month.

Navy News

The surgeon general of the navy announces that a "division of hospitals" has been established in the bureau of medicine and surgery. This new division will be under the inspector of medical activities and will coordinate matters relating to the administration of medical activities at naval hospitals, naval hospital ships, sick quarters and dispensaries.

Fourteen members of the medical corps of the navy (lieutenants junior grade and lieutenants) have been assigned to the course of postgraduate instruction in naval medicine and surgery at the U. S. Naval Medical School, Washington, D. C. The fall session began September 10, and will be completed during the early part of next year. In addition to the subjects included in the regular schedule, instruction will be given in aviation medicine, and in gas warfare.

The U. S. Naval Dental School, a part of the Naval Medical School, opened its second session on September 10, with an attendance of five naval dental officers who will receive postgraduate instruction. Ten members of the hospital corps of the navy are being trained as dental technicians.

Veterans' Bureau News

A conference of all the chief nurses of the U. S. Veterans' Bureau hospitals and clinics will be held in Washington, November 5. An attendance of about 100 nurses is expected. The conference, which will continue for a week, is a part of a general plan of the director of the Veterans' Bureau, to come in contact with all persons responsible for the administration of the activities of the bureau. Among the topics to be discussed is the establishment of uniform nursing service.

Director Hines, of the U. S. Veterans' Bureau, left Washington, October 5, for an inspection of Pacific Coast institutions. He will arrive in Seattle, October 9, and inspect the local offices and the new hospital at American Lake, and October 10, the hospital at Portland, Ore.; he will then go to southern California to inspect proposed sites for a 200-bed tuberculosis hospital.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Sept. 16, 1923.

British Association for the Advancement of Science

SYMBIOSIS

At the recent annual meeting of the British Association for the Advancement of Science, as usual, many topics were discussed of a medical nature or with a special interest for physicians. Prof. G. H. F. Nuttall, president of the physiological section, gave an address on "Symbiosis," which he defined as conjoint life between different organisms that in a varying degree were benefited by the partnership. It was a balancing between two extremes—complete immunity and deadly infective disease. A condition of perfect balance was realized with comparative rarity, because of the many difficulties of its establishment in organisms that were either capable of living independently or were incapable of resisting the invasion of organisms imperfectly adapted to communal life. It was difficult to imagine how symbiosis originated otherwise than by passing through a preliminary stage of parasitism on the part of one or the other of the associated organisms. Some supposed instances might yet prove to be cases of true parasitism. Symbiosis occurred frequently between animals and plants, algae, fungi and bacteria, becoming in some cases permanent intracellular inhabitants of their hosts, and at times being transmitted from host to host hereditarily. Among many curious examples of symbiosis described by Professor Nuttall was that of the fungus (*Mycorrhiza*) that formed a network in the roots of orchids. Difficulty was experienced in raising these plants from their seeds. The reason was that the seeds did not germinate in the absence of the fungus. This entered the seed through its least resistant and highly permeable cells, which apparently emitted a secretion attractive to the fungus. Each species of orchid possessed a special species, variety or race of fungus, in the absence of which the seeds would not germinate.

A NEW RACE TYPE

In the anthropological section, Mr. A. J. Pape suggested that there were medical, mathematical and educational evidences of a new race type, and outlined its characteristics. These included a distinct increase of cranial development, hair fine in texture and skin fine grained and thin. The eyes were especially luminous and intelligent looking; the eyebrows were rather prominent, and the type of face was somewhat triangular but not sharp. The psychology manifested itself in rapid response to sympathy, pity in suffering, power to comprehend principles easily, quick intuitions, thoroughness and sensitiveness. There was a distaste for meat and coarse foods, but not a large appetite along any lines.

MOLECULAR ORIENTATION

In the chemical section, Professor Donnan, F.R.S., in his presidential address, said that much attention had been paid by chemists, physicists and physiologists to the phenomena that occur at the surfaces separating different sorts of matter in bulk. Things could happen here that did not occur in the more homogeneous and uniform regions well inside the volume of matter in bulk. When these were investigated, they revealed molecular or atomic peculiarities that could not be detected in the jostling throng of individuals inside. Living organisms were full of surfaces and membranes, and, therefore, what happened in these regions was of great impor-

tance for the science of life. An essential characteristic of the ordering or arraying of surfaces might consist of a special orientation. In the chemical and physical actions occurring in a volume of liquid whose bulk was large compared with its surface, the molecules or atoms probably moved toward one another with every sort of orientation; but should some special orientation be characteristic of interfaces, then such interfaces would exhibit new phenomena. In the older theories, the fields of force surrounding a molecule were regarded as essentially uniform in their spatial relations, forming a concentric sphere with the molecule at their center. We now know that these fields of force may be very irregular and may be localized in polar fashion. Properties of surfaces, such as molecular orientation and its connected phenomena of surface concentration or adsorption and electrical polarization, had a special interest in their bearing on the phenomena of life. They were all related to states of thermodynamic equilibrium. It was to be remembered that the activities, and, indeed, the very existence, of a living organism depended on its continuous utilization of an environment not in thermodynamic equilibrium. A living organism was a consumer and transformer of free energy, and environmental equilibrium meant nonactivity and eventually death. It was therefore probable that along and across living surfaces there was a continual flux of activity. It might be suggested that the physicochemical manifestations of life were functions of the same powers and potentialities of electrons, atoms, ions and molecules that were found in what they called inanimate environment. Life would then be simply a new functional relationship of old factors, at all events so far as its various physicochemical mechanisms were concerned.

CANCER AND DIET

At a crowded meeting of the physiological section, Dr. S. Monckton Copeman read a paper on cancer and diet. There could be no doubt that the death rate from cancer was increasing. It was held that the increase was more apparent than real, owing to the increased expectation of life, and such factors as more successful diagnosis and certification. These things might have had an influence over a period of two generations, but the recorded mortality had trebled. The tragic fact remained that of persons over middle age, one in seven might be expected to die of cancer. Both the definite cause and the cure were still to seek. Little, if any, definite knowledge was available as to the effect in the adult of a dietary deficient in the fat-soluble A vitamin, though it was known to be essential to the growth of the young animal. Dr. Copeman described a series of researches carried out by him, mainly on patients suffering from cancer, which afforded evidence that the amount of A vitamin required by the adult was extremely small, and that any considerable excess in the food might eventually be injurious. A dietary from which foodstuffs of animal origin containing the fat-soluble vitamins were excluded was formulated. Everything containing animal fat, such as fat meat, butter, eggs and cream, was cut out, but bacon and ham were allowed because the amount of fat-soluble A they contained was extremely small. Latterly he had added to this diet a little fat of vegetable origin. Cancer patients in institutions were put on this diet, which was satisfactory from the physiologic point of view. Under it they increased in weight and in some cases became free from pain. The treatment in suitable cases increased the expectation of life, and the freedom from pain might be so complete as to obviate entirely the previous need of anodynes. Dr. Copeman had studied the statistics of the "enclosed" and the "unenclosed" communities of the Roman Church. He found that, although the enclosed orders that were practically vegetarians had not complete immunity from cancer, they did not suffer so much as the unenclosed orders.

POPULATION AND UNEMPLOYMENT

In the section of economic science and statistics, Sir William H. Beveridge examined the common impression that the civilized world is threatened with overpopulation. Dealing with Britain in particular, he said that during the last half of the nineteenth century our industries were finding room for a rapidly increasing number of wage earners with a rising standard of production and comfort. Throughout the whole of that period, we had unemployment, and more than once it reached a height comparable, if not equal, to the present. During 1922, the percentage averaged 15, but in 1879 it was over 11. The experience of that year was then unparalleled, yet it heralded not a period of overpopulation, but one of expansion and prosperity, which reached, if it did not surpass, all previous ones. He questioned whether excessive growth of population ever caused unemployment. A more probable effect would be pressure to work more than before in order to obtain the same comforts. Sir William then dealt with a theory propounded by J. M. Keynes that, even before the war, Europe was threatened by the instability of an excessive population depending on a complicated and artificial organization, and that, about 1900, a diminishing yield of Nature to man's effort was beginning to show itself. While less inclined to be pessimistic than Mr. Keynes about the tendencies before the war, he was more pessimistic about the effects of the war and its possible enduring damage. Before the war there was nothing to suggest that Europe had reached its economic climax. But the war damage was great, and we were not yet in sight of the end. Man for his present troubles had to accuse neither the niggardliness of Nature nor his own instinct of reproduction, but other instincts in excess. He had to find the remedy elsewhere than in birth control.

In the discussion that followed, Prof. A. W. Kirkaldy said that since the population of the whole world could be placed in the smallest English county, the question of overpopulation would appear hardly to have arisen. A more important matter was quality. In the great industrial towns the increase of population took place in the least desirable sections. Dr. Marie Stopes, president of the Society for Birth Control, said that statistics meant much more to the economist than they did in the real world. Sir William Beveridge flouted the physiologic facts of life and forgot the unemployment. We spend an immense sum in maintaining diseased and enfeebled persons whom birth control would have prevented.

INSULIN

In the physiologic section, Prof. J. R. Macleod, F.R.S., of Toronto, said that evidence was being collected which seemed to suggest that in some cases of diabetes the pancreas might be brought back under insulin treatment to its normal functioning. Some persons had succeeded in making preparations from ordinary brewers' yeast which lowered the sugar content of the blood, but the effective substance could not be obtained with anything like regularity. Little was known of the chemical constitution of insulin, but its destruction by pepsin suggested a very complex protein. That would make the problem of the synthetic preparation a very difficult one. The chemist had never yet been able to synthetize a protein; on the other hand, it might not be a protein at all, and that would offer some hope of its synthetization. It was a substance of large molecules readily absorbed and forming numerous salts. Discussing whether insulin could be a cure for diabetes, he said the question really was: "Do we by relieving the diseased pancreas of the strain of trying to produce

insulin tend to allow the organ to regain its function in producing insulin?" The new islet tissue that had been demonstrated to occur months after ligation of the pancreatic ducts raised the hope that, by resting the pancreas, the gland would ultimately produce new islet tissue and so resume the power to produce insulin.

THE TRAINING OF MIDWIVES

More than 50 per cent. of childbirths in this country are attended by midwives solely. Dr. Janet M. Campbell, senior medical officer for maternity and child welfare of the ministry of health, has made an important report on their training. She believes that a longer training would bring a better standard of midwifery and reduce the present unduly high morbidity and mortality of childbirth. She suggests that (1) there should be an extension of the training for unqualified women from six to twelve months, and for trained nurses from four to six months; (2) the curriculum should be revised so that education may be on a broader basis in such a way (*a*) as to include clinical and theoretical instruction in the management of labor, both in maternity wards and in the patients' homes, and (*b*) to provide that adequate attention be devoted to such subjects as maternity nursing, antenatal care, breast feeding, the care of the new-born, the nursing of puerperal fever, and ophthalmia neonatorum; (3) midwifery training schools should be graded according to their facilities for complete or partial training. Small training institutions should be affiliated for teaching purposes with institutions able to offer complementary facilities; (4) a teacher's certificate in midwifery should be established for midwives desirous of holding responsible educational positions.

PARIS

(From Our Regular Correspondent)

Sept. 14, 1923.

Third International Congress on Leprosy

The first congress on leprosy was held in Berlin in 1897, when Virchow presided. In 1909, the Norwegian government called the second conference at Bergen with Hansen, to whom belongs the credit of discovering the bacillus of leprosy, presiding. The third congress has just been held at Strasbourg on the occasion of the centenary of Pasteur with Dr. Jeanselme, professor of cutaneous and syphilitic diseases of the Faculty of Medicine of Paris, presiding, assisted by Dr. Marchoux of the Pasteur Institute of Paris, general secretary of the conference. Thirty-four countries were represented.

DISTRIBUTION OF LEPROSY

The statistics reported to the conference, although incomplete, afforded information on the actual geographic distribution of leprosy. An outstanding feature is a considerable decrease of the disease in the Scandinavian countries. According to Dr. Lie of Bergen, the number of lepers in Norway, which in 1908 was 394, has fallen to 140; in 1922, for the first time in many years, no new cases were reported. In Sweden, likewise, J. Reenstierna of Stockholm reported a decrease; from eighty-nine cases at the end of 1907, the figure has fallen to thirty-seven. Nevertheless, new cases have been discovered in Sweden, nearly all of them having originated in Haesingland and Dalecarlia. Professor Ehlers of Copenhagen reported that in Denmark leprosy no longer exists, and that in Iceland there has been such great improvement that in a few years leprosy will have disappeared. According to Professor Ivanov of Moscow, foci of leprosy exist particularly in Esthonia and Latvia, which are separated from the Russian republic. Talvik of Tartolin (formerly Dorpat) and Shirons of Riga furnished the figures on these two former Russian provinces. In Latvia the number of lepers has fallen from 976 in 1900 to 223; in Esthonia from 554 in 1903 to 350. In England, according to Col. S. P. James, only twenty-four cases are officially known, all of them imported. In France, leprosy exists in the Midi, particularly in the department of Alpes-Maritimes, but there also it has been imported and is decreasing. In South America there are, in Brazil, according to Professor Rabello of Rio de Janeiro, 7,000 lepers in a population of 32,000,000; in Uruguay, 197 cases were recorded in 1922. In Cuba, according to Dr. Primelles the disease is decreasing, the proportion of lepers being 0.50 for each thousand of the population. In Asia, foci exist in Siberia. In Japan, according to Dr. Mitsuda the proportion, which in 1906 was 0.50, decreased to 0.28 for each thousand in 1919.

LEPROSY IN THE FRENCH COLONIES

General medical inspector Gouzien, president of the upper colonial board of health, reported on data collected in 1920 by Major Marcel Léger. Broadly speaking, in the regions most affected, the leprosy rate varies between 20 and 30 or more for each thousand inhabitants. A proportion of 4,000 or 5,000 lepers in a population of two or three million is not uncommon. Two colonies, the coast of Somaliland and Saint-Pierre and Miquelon, seem to be free from leprosy. On the other hand, the endemic seems to be increasing in Guinea, especially on the Ivory Coast; while, in the majority of our other colonies the number of lepers seems to be stationary. It is important to note, however, that if the number of lepers recognized and isolated is steadily increasing in certain colonies, this is only because new cases are better reported, thanks to the operation of the census and recruiting, to the spreading of smallpox vaccination and to treatment by atoxyl in those countries, such as equatorial Africa, where trypanosomiasis is so severe. In the mandatory state of Cameroon, the number of cases of leprosy has increased since the French occupation, not because the total number of lepers has actually augmented, but because, thanks to the increased activity of the medical personnel and the strict vigilance exercised by them over the population, a large number of lepers have been discovered and added to the figures; thus, the number of isolated lepers in the last three years in the leper colonies of Cameroon was 614 in 1920, 817 in 1921 and 1,189 in 1922. Official colonial statistics are not numerous nor are they accurate, as is shown by an anecdote told by Professor Jeanselme. One day while visiting a village in Tonkin, he was surprised to note that none of the Anamese, previously reported as lepers, were lepers at all. Relief had been granted by the colony to each leper, and the native mayor had picked out those under his administration to whom he wished the donations given.

TREATMENT OF LEPROSY

The attention of the conference was directed to modern methods of treatment, notably the use of the ethyl esters of the fatty acids of chaulmoogra oil, prepared according to the method of H. T. Hollmann and A. L. Dean of Hawaii. Professor Jeanselme stated that he did not share the enthusiasm that followed the first trials of this method. He treated four lepers, each with a different type of leprosy, systematically by injections of chaulmoogric esters produced at the laboratory belonging to the leper colony at Kalawao, Hawaii. He followed closely the instructions issued by Hollmann and Dean. Of the four patients, two died of leprosy during treatment; the other two obtained no relief. Two cases of nodular type reported by him, which he treated for five months, remained stationary. Dr. H. Gougerot, agrégé professor of the Faculty of Medicine, Paris, tried the ethyl esters of these fatty acids in three cases without result. On the other hand, Professor Rabello and Dr. Aparacia of Colombia consider these derivatives of chaulmoogra oil the best treatment for all types of

leprosy, especially for the early forms. Lie of Bergen obtained good results by this method in four cases out of eight. Another method of treatment which has proved beneficial, especially in nodular leprosy, is the arsphenamin preparation introduced by Jeanselme and Pomaret for the treatment of syphilis, which is given by intramuscular injection. According to Gougerot, this is a delicate procedure, because of the sensitiveness of lepers to arsphenamin, and requires close surveillance. Gougerot considers it, however, the most efficient method for the general treatment of leprosy.

Good effects have been reported from the use of general heliotherapy (Gougerot, Mathis), carbon dioxid snow (Paldrock), and radium (de Kaiser); but, as Jeanselme remarks, these physical agencies act superficially and improve the patient's sense of physical well-being; they do not hinder the evolution of the leprosy.

LEGISLATIVE MEASURES AGAINST LEPROSY

Dr. Marchoux outlined an ideal legislation for leprosy. He stated that leper colonies and the isolation of lepers are relics of the dark ages. If it were proposed to intern tuberculous patients in colonies there would be general protest. Tuberculosis is, nevertheless, far more dangerous than leprosy. Leper hospitals, sanatoriums and dispensaries are necessary. Human law should not forbid their intermarriage, since hereditary transmission of the disease is exceptional; but children should be separated from leprous parents at birth. The ideal procedure would be a domiciliary isolation such as has been tried in Norway, but the method of its application must vary in different countries. Dispensaries and visiting nurses are useless in sparsely populated districts where the people are nomadic and primitive. As a foundation for legislation, report of cases should be obligatory, domiciliary isolation should be compulsory for those able to afford it; and, for paupers, detention in proper institutions should be enforced. Above all, efficient treatment and diversional interests must be assured.

Milian of Paris requested that a distinction be made between "open" and "closed" leprosy. Jeanselme objected because "closed" leprosy might any day become contagious. Some other criterion must be adopted; the matter is strictly a social question. Leprous beggars, tramps and hoboes must be interned.

The conference adopted the following resolutions:

1. Legislative measures against leprosy should vary according to the country in which they are to be applied; but in every instance the entrance of foreign lepers should be forbidden.

2. In countries where leprosy is not spreading, isolation in a hospital or in the home, as in Norway, is recommended.

3. In places where leprosy is endemic, isolation is essential: (*a*) This isolation should be humane and should permit contact of the leper with his family if this measure is compatible with efficient treatment; (*b*) paupers, tramps and others who cannot be isolated in their homes should be isolated in hospitals, sanatoriums or farm colonies, as conditions permit, in which the most efficient treatment can be applied; (*c*) children of lepers should be separated from their parents at birth and should be under continued observation.

4. Members of leprous families should be compelled to submit to periodic examination.

5. The public should be taught that leprosy is contagious.

6. Lepers should be forbidden to engage in occupations which would favor the dissemination of the disease. The consequences of this prohibition must be recognized and compensation be given to the patient and his dependents.

RECOMMENDATIONS ADDRESSED TO THE LEAGUE OF NATIONS

The conference also recommended that the League of Nations (1) undertake the publication of the journal *"Lepra"* (*Archives internationales de la lèpre*); (2) create an international bureau for the collection of information and data on leprosy, and (3) undertake to compile statistics on the leprosy of the world.

MADRID

(From Our Regular Correspondent)

Aug. 2, 1923.

The Academy of Medicine and Rejuvenation

In an address on his admission to the Royal Academy of Medicine, Dr. L. Cardenal, professor of surgery in the Madrid Medical School, discussed the subject of rejuvenation. Dr. Cardenal stated that he had adopted the methods of Steinach, which apparently had first been applied to man by Lichtenstern. He has tried this method recently in fifty-eight persons. These he divides into three groups: (1) twenty-seven men under 40 years of age, who were prematurely senescent; (2) twenty-two men aged from 50 to 60; (3) nine men aged over 60 years. In thirteen cases, the vasa deferentia were ligated; in sixteen cases, the small efferent ducts were ligated on one side only; in twenty-two cases, the efferent ducts were tied on both sides. Seven patients have been lost to observation, and no results were secured in the cases in which the vas deferens was ligated. There thus remain thirty-eight cases for consideration. In fourteen, the treatment failed completely; in the other twenty-four the effects were marked, as shown by increase in weight, changes in the skin and growth of hair. According to reports from the physician, schoolmaster and priest of the towns in which these patients live, the improvement in mentality has been remarkable in practically all the patients. One patient, over 70 years old, has started to learn to read. In many, the development of libido and potentia coeundi has been such as to be considered by the patients a sign of disease. The best results were obtained when the vasa efferentia were ligated on both sides. The prematurely senile patients without organic disease showed the most improvement. Cardenal guarded against the effects of autosuggestion, by not informing his patients in advance of the nature of the operation he was planning. Most of them were under the impression that they were being operated on for hernia.

The youngest member of the academy, Dr. Marañón, replied to Cardenal's address, and sang the praises of old age in original and eloquent terms. At the time of the climacterium, he said, the hands of the clock show the right hour; while we may attempt by force to stay their onward march, this is merely self-deception; the machinery continues to operate until the main spring finally gives out. Even on the assumption that rejuvenation is possible, is it worth while? Physiologically and psychologically, the answer must be an emphatic negative. Prophylaxis against old age implies a life of abstention. Those who but half live, in order to live long, are the persons who dread old age. Those who enjoy life to the full accept the declination of their powers as inevitable, and comfort themselves by their recollections and the feeling of satiety. Goethe knew what he was about when he took for his Faust an old scholar and not a spent roué. Marañón also expressed the fear that, in the long run, the stimulus from rejuvenating hormones would harm the body. Modern surgery should aim only to decrease the discomforts of old age, so that the man will not be plunged abruptly into the ocean of death as by a cataract, but will travel gently toward it, borne by a quiet stream. Let us conquer old age, not fear or shirk it; let us try to make old age more pleasant for others. Let us remember that old hearts retain their sensitiveness; that the wrong views of the old man were the truths of his youth, and that what we now consider to be truth may tomorrow be replaced. Let us find in their failings, not a

source of irritation, but a hint to mend our own defects. If to this is added perhaps a little endocrine surgery, we shall succeed, not in the futile effort to banish old age, but in making it painless.

The Sanitary Group in the Senate

In order to handle more efficiently all matters relating to public health, the physicians now in the senate have organized a sanitary group, which will act as a unit, regardless of party affiliations, when sanitary questions are involved. At present, this group is engaged in the preparation of a bill on public health reorganization. The bill has sixteen sections devoted to: the appropriation of sufficient funds for such health purposes as sanitation of dwellings, safety of water supply, sewage disposal and collection of death statistics; organization of local and provincial health organizations; health inspection service; quarantine service; organization of research and public health laboratories; creation of a national school of hygiene and public health; veterinary service and meat and food inspection; public assistance, which will be connected with public health work; creation either of a department or bureau of public health; school hygiene; physical culture; health and maternity insurance; prevention of communicable diseases, including notification and control of epidemics, with special provisions in regard to tuberculosis, leprosy, malaria and infant mortality. The duties of the different authorities are specified, and penalties are provided for violations of the law.

Limitation of the Number of Practicing Physicians

Dr. Cortezo, of the senate sanitary group, has introduced a bill to deal with the overcrowding of the medical profession in Spain. After a thorough study of available data, Dr. Cortezo has ascertained that every year in Spain there is a surplus of from 500 to 600 physicians. If no measures are taken to remedy this condition, in from ten to fifteen years there will be an excess of more than 10,000 physicians. Dr. Cortezo therefore proposes: first, to forbid altogether the practice of medicine in Spain by foreign physicians. Physicians now licensed will be allowed to continue to practice, and students now enrolled will receive their diplomas on completion of their courses. In the future, a commission will decide annually the number of physicians to be admitted to practice; graduating physicians will be required to submit to a competitive examination in order to determine those best fitted to fill the vacant places. It is to be noted that this plan was suggested by the editor and owner of the *Siglo Médico*. It is a fact that the profession is almost swamped by the stream of new physicians being poured out by the ten medical schools of Spain.

New Tax on Spanish Physicians

The medical profession in this country has shown as little foresight as the other so-called intellectuals. Three years ago, when there was a discussion in parliament as to a change in the taxing system, the medical profession, as a whole, paid no attention to the matter. Hampered by this indifference, the physicians in parliament were unable to prevent action. Hitherto, many of the various professions—physicians, lawyers, notaries—paid what are called *patentes* (license duties). The treasury collected from each profession a certain amount. This was made up by the several members, each contributing what he thought proper. Through the political influence of Dr. Calleja, the physicians' contribution has been unusually small. As the government is constantly in need of more money, a 5 per cent. income tax has been placed on professional men. The physicians paid no attention whatever to this law, even when it was passed. Some of the medical societies held meetings to explain the importance of the change, but the physicians stayed away. Now, when the law is about to be enforced, protests are coming from all sides from indignant physicians, and medical societies are registering their opposition to the new system. One of the regulations compels physicians to keep a record of fees and other receipts. This provision is specially objected to as a breach of professional secrecy. In fighting the law, the physicians are at a disadvantage, as the lawyers have already agreed to comply. The presidents of the medical societies have threatened to call a medical strike if an attempt is made to collect the new tax from a profession already overburdened with difficulties, including excessive competition within its own ranks.

Death of Dr. Ortega Morejon

We have also to record the death of Dr. Ortega Morejon, a member of the Royal Academy of Medicine, senator and former president of the Madrid Medical Society. He was best known for his work on tuberculosis and his medicosocial activities.

BERLIN

(From Our Regular Correspondent)

Sept. 15, 1923.

Mortality in Germany

The mortality among the male and the female population of Germany in 1913 (157 and 143, respectively, per 10,000 inhabitants) was the lowest that had ever been recorded. In 1914, the last five months of which marked the beginning of the war, the difference between the mortality among males and females increased from 14 to 86, the mortality for males being 234 and for females 148. In 1915, the first complete year of warfare, which brought the heaviest losses of the war, the mortality among males (287) was almost twice as great as that among females (145). During the years 1916 and 1917, the war losses decreased, as did the difference between the mortality of the sexes. In 1916, the mortality among females dropped to 141, which was even lower than in 1913; this partly due to the fact that in 1916 the diminishing birth rate, which was noted from May, 1915, was beginning to affect the mortality statistics, and there was a marked decrease in the number of deaths of infants under 1 year of age. Although this decrease was even greater in 1917, the mortality among females began to rise rapidly, reaching 158 in 1917, and 195 in 1918. At the same time, the mortality among males increased and reached its maximum in 1918 (304), the highest rate since 1872. After the maximal increase of mortality in 1918, a rapid decrease for both sexes took place in 1919, which continued until 1921; the mortality among females fell more slowly, mainly because the influenza epidemic of 1919 and 1920 caused a higher mortality among women than among men. Another contributing cause was the heavy increase of mortality due to puerperal fever. The highest mortality "from violence" (that is, on the field of battle) was, for males, 126 per 10,000 of population, during the second year of the war, 1915, which was equal to almost half of the total mortality for males for that year. Following a considerable decrease during the years 1916 and 1917, the mortality from violence in 1918 again rose to 106, about one third of the general rate for males. From this comparison it is evident that in 1918 the deaths from natural causes must have increased considerably among the male population.

Next to the deaths from violent causes, in which category are included the deaths on the field of battle, influenza claimed the highest mortality in 1918, 27.6 for the male and 30.8 for the female population. Scarcity of food arising out of war conditions was responsible for the death of large numbers of weakly persons. Persons with chronic tuberculosis and of advanced age were most affected; consequently there was an increase in mortality from tuberculosis and senile debility.

The resistance of women seems to have broken down first, for the mortality from tuberculosis and senile debility increased more rapidly among them than among the men. After reaching the peak in 1918, the decrease in mortality from tuberculosis was slower in women than men. In 1921, with the accentuation of economic distress, the mortality from tuberculosis again began to rise.

Diseases of the circulatory system and neoplasms, in Germany as in other countries, were the only causes of death the mortality from which was increasing before the war, although the increases were doubtless partly due to improved methods of collecting statistics. Deaths from diseases of the nervous system show only slight changes during the war years. During the war—strange to say—there was no further increase of the incidence of neoplasms; in fact, there was a slight decrease for both sexes, whereas immediately after the close of the war a renewed increase set in.

The decrease in the consumption of alcoholic beverages, during the war, brought about a decrease in the mortality from alcoholism. One of the most striking features of the statistics on the causes of death during the war years is the fact that there was a marked and almost uninterrupted decrease in the mortality from acute infectious diseases. The mortality from diphtheria, pertussis, measles and scarlet fever has not been before so favorable in Germany as it has been since the war. Owing to the circumstance that we succeeded in keeping such war epidemics as typhus, recurrent fever and cholera out of our borders, the mortality among the population of Germany, after deducting war losses, in spite of the extreme scarcity of food, was less than in previous wars, which always were followed by severe epidemics.

Marriages

FREDERICK C. GREAVES, Lieut., M. C., U. S. Navy, Washington, D. C., to Miss Rose Anclee Torbol of Duluth, Minn., August 11.

BENJAMIN VAUGHN MCCLANAHAN, Galesburg, Ill., to Miss Anna Belle Stevenson of Monmouth, Ill., September 26.

JOHN THOMAS BURNS, Kalamazoo, Mich., to Miss Jane Pauline Donovan of Providence, R. I., September 15.

JULIEN HARMON WILSON, Columbus, Ohio, to Miss Mary Louise Colbert of Washington, D. C., August 16.

MORTIMER HARRY WILLIAMS, Roanoke, Va., to Miss Julia Mountcastle of Weldon, N. C., September 8.

JAMES DAVIDSON RIVES, New Orleans, to Miss Marion Smith of Indianola, Miss., September 19.

FRED H. AUSTIN to Miss Joanna Newby, both of Bloomington, Ind., at Seymour, September 11.

L. POTTER HARSHMAN, Fort Wayne, Ind., to Miss Frances Thompson of Frankfort, September 1.

WILMOT SHIPP LITTLEJOHN, Tugalo, Ga., to Miss Mary Rose Brown of Americus, August 22.

SAMUEL H. LONG to Miss Ruth Lachman, both of Chattanooga, Tenn., September 23.

RICHARD LEE WILLIS, Chatham, Va., to Miss Elizabeth Harris of Crozet, recently.

SAMUEL BLAUGRUND to Miss Helen B. Krueger, both of Trenton, N. J., October 4.

GEORGE B. PACKARD, JR., to Miss Evelyn Summerton, both of Denver, September 8.

KARL B. RIEGER, Freeport, Ill., to Miss Lillian E. Hall of Chicago, October 6.

EDGAR R. HOLMES to Miss Alma L. Hieser, both of Minier, Ill., September 13.

ARTHUR H. HALL to Miss Gladys Buttermore, both of Cleveland, August 11.

HAROLD F. BAKER to Miss Eleanor Reeder, both of Muncy, Pa., August 16.

Deaths

Charles Wesley Hack, New York; University of Minnesota College of Medicine and Surgery, 1897; formerly prosector of anatomy at his alma mater; served with the M. C., U. S. Army, in the Spanish-American and Philippine wars; member of the U. S. Public Health Service; aged 53; died, September 25, of nephritis, at Vera Cruz, Mexico, where he had been for the past two years chief surgeon for the Hacienda Elpotrero.

Edward A. Krusen, Norristown, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1887; member of the Medical Association of the State of Pennsylvania; founder and proprietor of the Riverview Hospital; former president of the state homeopathic society; aged 63; died suddenly, September 20, of angina pectoris, at Johnstown.

Merrick Lincoln ⊕ Worcester, Mass.; Medical School of Harvard University, Boston, 1900; served in the M. C., U. S. Army, during the World War; on the staffs of the City and Memorial hospitals; formerly city physician; aged 48; died, September 3, at St. Barnabas Hospital, Portland, Me., of chronic nephritis.

Alonzo Mathew Edwards, Marion, Ill.; Vanderbilt University Medical Department, Nashville, Tenn., 1894; member of the Illinois State Medical Society; president of the school board; served in the M. C., U. S. Army, with the rank of captain, during the World War; aged 54; died, September 8, of heart disease.

Orfila L. Stevens ⊕ Indianapolis; Central College of Physicians and Surgeons, Indianapolis, 1896; had formerly served in China and the Philippines with the U. S. Marine Corps; on the staff of the Central Indiana State Hospital for Insane, where he died suddenly, September 23, of heart disease, aged 51.

Edwin Thompson Randall, Brooklyn; New York University Medical College, 1898; member of the Medical Society of the State of New York; formerly on the staff of the Bellevue Hospital, New York, and the German Hospital, Buffalo; aged 48; died, September 12, at the home of his mother, Amityville, N. Y.

Joseph Francis Munnerlyn ⊕ Columbia, S. C.; University of Maryland School of Medicine, Baltimore, 1914; member of the American Psychiatric Association; medical director of the State Hospital for the Insane; aged 34; died, August 25, following a long illness.

John H. Twitmeyer, Sharpsville, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1872; member of the Medical Society of the State of Pennsylvania; aged 79; died, September 20, at Lorain, Ohio, of injuries received in an automobile accident.

Granville Ernest Leavitt, Schurz, Nev.; Cooper Medical College, San Francisco, 1903; member of the Nevada State Medical Association; physician to the Walker River School; aged 50; was accidently drowned, September 17, in Beamer Lake, near Wellington.

Kate McCool Taggart Schley, Beaver Falls, Pa.; Woman's Medical College of Pennsylvania, Philadelphia, 1907; aged 45; died suddenly, June 10, at the Beaver Valley General Hospital, New Brighton, of pulmonary embolism following childbirth.

Samuel Payne Ford, Norwood, Ont., Canada; University of Buffalo (N. Y.) Department of Medicine, 1864; University of Toronto (Canada) Faculty of Medicine, 1869; for many years city health officer; aged 83; died, July 22, of senility.

Harry Edward Richards, Bloomfield, N. J.; Medical Department of Columbia College, New York, 1875; also a lawyer; for ten years president of the Bloomfield Theological Seminary; aged 73; died, September 15.

George William Major, Montreal, Que., Canada; McGill University Faculty of Medicine, Montreal, 1871; formerly on the staff of the Montreal General Hospital; aged 72; died, July 15, in London, England.

Daniel B. Northrup, San Diego, Calif.; Kansas City (Mo.) Medical College, 1880; for several years city health officer and county physician; aged 68; died, September 13, following an operation for gallstones.

Charles Sidney Muscroft, Cincinnati; Miami Medical College, Cincinnati, 1875; formerly county coroner and police surgeon; member of the board of health; aged 70; died suddenly, September 14.

⊕ Indicates "Fellow" of the American Medical Association.

Charles D. Stanhope, Milwaukee; Hahnemann Medical College and Hospital, Chicago, 1874; Civil War veteran; aged 79; died, September 18, at the National Home for Disabled Volunteer Soldiers.

William Cullen Bryant Jaynes, Rockford, Ill.; Chicago Homeopathic Medical College, 1882; aged 69; was found hanging on a farm near Durand with gunshot wounds in his chest, August 30.

Edward Benedict Malloy ✠ Akron, Ohio; University of Louisville (Ky.) Medical Department, 1912; served in the M. C., U. S. Army, during the World War; aged 37; died, September 17.

Frank A. Richardson, Huntsville, Ohio; Medical College of Ohio, Cincinnati, 1880; member of the Ohio State Medical Association; aged 64; was killed, September 17, when struck by a train.

Nicholas Perkins Oglesby, Dublin, Va.; Starling Medical College, Columbus, 1904; Spanish-American War veteran; aged 49; died, September 12, of heart disease, at Cincinnati.

Henry T. Norment, Henderson, Ky.; University of Louisville Medical Department, 1894; aged 70; died, September 14, at the Western State Hospital, Hopkinsville, of senility.

Robert Tier Davidson, Brooklyn; Bellevue Hospital Medical College, New York, 1877; aged 70; died, September 12, of uremia complicating arteriosclerosis and nephritis.

William Frederick Jardine, Kensington, P. E. I.; Dalhousie University Faculty of Medicine, Halifax, N. S., 1904; formerly mayor of Kensington; aged 45; died recently.

Constantin M. T. Klie ✠ St. Louis; Washington University Medical School, St. Louis, 1903; aged 46; was found dead in his automobile, September 5, of heart disease.

Samuel V. Duncan, Pleasantville, Iowa; Eclectic Medical Institute, Cincinnati, 1872; Civil War veteran; aged 83; died, September 1, at Dallas, Texas, of senility.

Samuel Major Hodes, Richmond, Va.; Medical College of Virginia, Richmond, 1915; member of the Medical Society of Virginia; aged 35; died, August 22.

Charles D. Hunt, Williamsport, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1887; aged 61; died, August 17, of endocarditis.

Timothy Grattan O'Connell, Bristol, Conn.; Yale University School of Medicine, New Haven, Conn., 1899; aged 46; died, September 8, of nephritis.

Francis M. Hunt, Dayton, Ohio; Cleveland University of Medicine and Surgery, 1888; aged 62; was found dead in bed, September 14, of heart disease.

Robert N. Hogg, West Point, Ga.; Medical Department of the Tulane University of Louisiana, New Orleans, 1895; aged 54; died suddenly, August 20.

Samuel F. Blair, Marietta, Ohio; College of Physicians and Surgeons, Keokuk, Iowa, 1877; aged 84; died, September 15, of cerebral hemorrhage.

Elijah Fillmore Truitt, Norfolk, Va.; College of Physicians and Surgeons, Baltimore, 1883; aged 64; died, September 2, of cerebral hemorrhage.

Austin Joseph Minor, Mauch Chunk, Pa.; Jefferson Medical College of Philadelphia, 1918; aged 33; died suddenly, September 12.

Charles Franklin Groff, Detroit; Miami Medical College, Cincinnati, 1893; aged 56; died, September 13, of pneumonia.

George T. Ewing, Smiths Grove, Ky.; University of Louisville Medical Department, 1871; aged 73; died, September 15.

Omar Oakley Hall ✠ Milford, Ill.; Chicago Medical College, 1879; aged 65; died, September 6, following a long illness.

George Albert Smith, Liberty, Pa.; Jefferson Medical College of Philadelphia, 1873; aged 74; died, September 2.

Cowles M. Vaiden, Ruthville, Va.; Medical College of Virginia, Richmond, 1892; aged 56; died, August 14.

Joseph Abrahamson, Philadelphia; University of Tomsk, Siberia, 1871; aged 70; died, September 11.

John W. Denbo, Elk City, Kan. (licensed, Kansas, 1901); aged 87; died, September 9, of senility.

J. Z. Cravey, Pensacola, Fla. (years of practice); aged 75; died, September 13, in a local hospital.

Frederick G. Hoener, Baltimore (licensed, Maryland, 1894); aged 71; died, September 4.

William Henry Mitchell, Minneapolis (years of practice); aged 73; died, August 17.

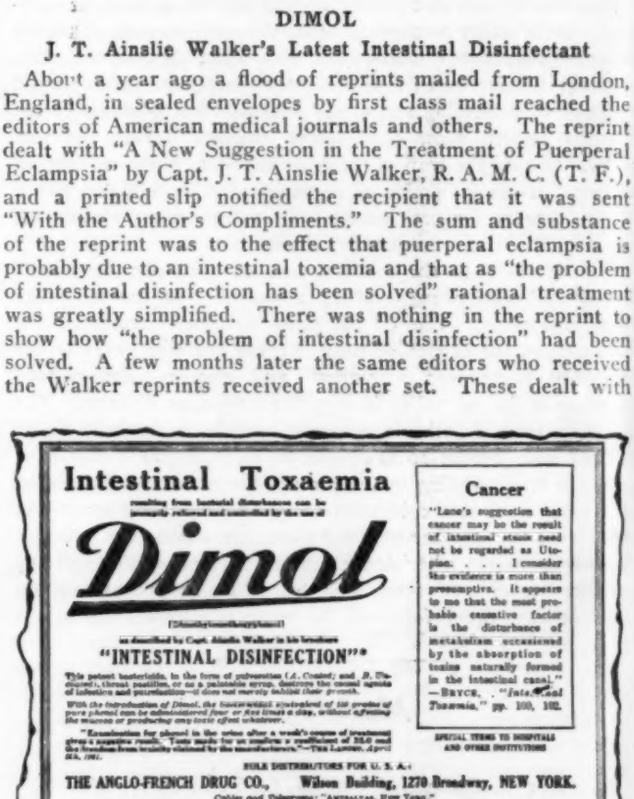
The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

DIMOL

J. T. Ainslie Walker's Latest Intestinal Disinfectant

About a year ago a flood of reprints mailed from London, England, in sealed envelopes by first class mail reached the editors of American medical journals and others. The reprint dealt with "A New Suggestion in the Treatment of Puerperal Eclampsia" by Capt. J. T. Ainslie Walker, R. A. M. C. (T. F.), and a printed slip notified the recipient that it was sent "With the Author's Compliments." The sum and substance of the reprint was to the effect that puerperal eclampsia is probably due to an intestinal toxemia and that as "the problem of intestinal disinfection has been solved" rational treatment was greatly simplified. There was nothing in the reprint to show how "the problem of intestinal disinfection" had been solved. A few months later the same editors who received the Walker reprints received another set. These dealt with


Intestinal Toxaemia
Dimol
"INTESTINAL DISINFECTION"*
Cancer
"Lane's suggestion that cancer may be the result of intestinal stasis need not be regarded as Utopian. . . . I consider the evidence is more than presumptive. It appears to me that the most probable causative factor is the disturbance of metabolism occasioned by the absorption of toxins naturally formed in the intestinal canal."
—BRYCE, "Intestinal Toxaemia," pp. 100, 102.
SOLE DISTRIBUTORS FOR U. S. A.:
THE ANGLO-FRENCH DRUG CO., Wilson Building, 1270 Broadway, NEW YORK.

A typical advertisement of Dimol.

"Dimo" in the treatment of summer diarrhea in infants, an article by A. N. M. Davidson, M.R.C.S., Eng. Still more recent American medical editors have been the recipients of a paper covered pamphlet of twelve pages which is mailed from England and purports to be a "book" sent for review "With the Publisher's Compliments." The pamphlet is even endowed with a price, one shilling! The title of the pamphlet is "Colonic and Duodenal Lavage" by Capt. J. T. Ainslie Walker, R. A. M. C. (T. F.). This latest work is a very obvious and frank puff of "Dimol."

So much for the ground work of what is essentially an advertising campaign. Now for certain facts:

"Dimol, The Intestinal Disinfectant" is being sold to American physicians by the Anglo-French Drug Company of New York City. Dimol is another preparation introduced by J. T. Ainslie Walker of London, England. In this connection it will be well before discussing Dimol to call to mind a little not very ancient history.

Dr. Walker first attained notice by his work in association with Rideal on the standardization of disinfectants, the "Rideal-Walker method of determining phenol co-efficients." The method, while of value, was not favorably received in this country and was superseded by the U. S. Hygienic Laboratory method. The Council on Pharmacy and Chemistry published a critical report on the various methods, pointing out the disadvantages of the Rideal-Walker method, and recommending the Hygienic Laboratory method. The Council's report brought forth a lengthy reply from Walker (who had come to America) that appeared in *American Medicine.*

Captain Walker, however, seems not to have been acting wholly as a scientific man defending a principle. As the *Old Dominion Journal of Medicine and Surgery* commented:

"Since coming to America, Mr. Walker has been in the employ of a manufacturer of disinfectants and his status has been necessarily that of a hired advocate rather than that of a disinterested scientist."

At that time it seemed Mr. Walker was connected with the Barrett Manufacturing Co., which exploits "Pyxol," a secret proprietary disinfectant resembling compound solution of cresol. This preparation was labeled as having a "guaranteed Rideal-Walker co-efficient for *B. Typhosus*—20." Pyxol was labeled as being non-poisonous and non-caustic; it was neither and the federal authorities brought suit against the Barrett Manufacturing Co. for misbranding. In December, 1914, the company pleaded guilty to the charge and was fined.

While he was in this country Mr. Walker introduced his first "intestinal germicide" under the proprietary name "Trimethol." This was claimed to have a Rideal-Walker co-efficient of 40 even in the intestinal canal! According to the advertising:

"The active principle of this new drug, chemically considered, may be described as trimethyl-methoxy-phenol $C_6H(CH_3)_3.(OCH_3).OH$".

The Council on Pharmacy and Chemistry undertook to investigate this new "intestinal disinfectant." The Walker-Leeming Laboratories, which marketed it, and J. T. Ainslie Walker both were asked to submit details of experimental studies and also to furnish a supply of pure Trimethol. The data submitted were meager to a degree. Moreover, the request on the part of the Council that specimens of the pure substance be furnished was met with a refusal on the ground that the substance was never used in its undiluted form. The Council, after careful investigation, reported that the claims were not supported by the evidence and declared the product ineligible for New and Nonofficial Remedies.

Trimethol never had any vogue worth mentioning in the United States. Later we find Mr. Walker again in England promoting another intestinal disinfectant "Dimol," the subject of the present article. A small brochure entitled "Intestinal Disinfection," written by Captain Walker, and published in the form of a scientific article rather than a piece of advertising puffery, contains much of the old Trimethol literature either "lifted" entire or revamped. It also contains this statement:

"The foregoing description of Trimethol applies with equal or even greater force to *the more recent product*, dimethylomethoxyphenol, $C_6H_2(CH_3)_2.(OCH_3).OH$, in combination with tri and tetra-methylophenols—Dimol." [Italics ours.—ED.]

To a student of organic chemistry the claims for composition of Trimethol and Dimol sound suspiciously alike. Yet Mr. Walker would have us believe that they are different. However, the American agents for the preparation make this claim:

"DIMOL is the registered name for a product known in the U. S. A. since 1914 under the name 'TRIMETHOL.'"

Walker's method of advertising himself and Dimol is naïve. We wonder if our English confrères still take him seriously. Americans have ceased to do so.

Correspondence

HISTORY OF THE MEDICAL DEPARTMENT IN THE WORLD WAR

To the Editor:—In the review of The Medical Department of the United States Army in the World War (THE JOURNAL, September 22), it is stated that "the United States Medical History of the World War is limited to an edition of about 3,000, and that it will be available only to libraries and institutions."

Your attention is called to the fact that, in anticipation of an additional demand for this publication, the Superintendent of Documents of this office, who is authorized by law to print copies of publications for sale, ordered a supply for this purpose, and can now furnish Vol. 15, Anthropology, for $1.75 per copy. Similar sales arrangements will be made for the succeeding volumes.

GEORGE H. CARTER, Washington, D. C.
Public Printer, Government
Printing Office.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

EXTERMINATION OF PINWORMS

To the Editor:—Is there any new or more effective method in eliminating pinworms from a child than the usual anthelmintics and bowel irrigations? I have an unusual case which does not respond to the foregoing treatment, and the chance of reinfection has also been given careful study.

C. H. WHITING, M.D., New York.

ANSWER.—The prevention of reinfection is the chief point in the treatment of oxyuriasis. This is quite difficult, in view of the fact that, as the female worms carrying thousands of ova escape from the anus, they are likely to become crushed, especially because the itching they produce prompts scratching. Thus, the ova, becoming smeared over the anal region, are liable to enter the mouth sooner or later, chiefly by way of the hands, most especially in children. Hence, it will be seen that special attention must be given to the anal region and the child's hands. The treatment begins with a full bath with soap and water, special attention being paid to the anal region. After this the anal opening is anointed with dilute mercurial ointment, and a pad of cotton applied. After each defecation, the anal region should be thoroughly cleansed with soap and water, and the cotton and ointment reapplied. A garment closed between the limbs will do a good deal toward keeping the child's hands away from the anus. This and the bed linen must be changed frequently. The hands of the child should be scrubbed with nail brush, soap and water, and the finger nails kept thoroughly clean. Daily full baths are also desirable.

If we succeed in breaking in on the vicious circle of reinfection for at least two weeks, preferably longer, the patient will be cured, as the life cycle of the oxyurid, from the time the ovum enters the mouth to the time the females appear at the opening of the anus, is about fourteen days.

The daily use, during this time, of enemas of soap and water might be of additional advantage. Medicinal anthelmintics are of little use.

If several children are closely associated, simultaneous treatment of all is necessary in order to prevent mutual reinfection.

STATUS OF INSULIN AND PANCREATIN IN DIABETES—SODIUM IODID IN HYPERTENSION

To the Editor:—1. What is the status of the insulin treatment of diabetes; also, what is the value or the use of desiccated pancreas in the treatment of pancreatic diabetes? 2. It has been stated in a number of places that desiccated pancreas in the treatment of pancreatic diabetes is inert because of the destruction in the stomach or intestine of the insulin or similar substance presuming to make pancreas therapy active. Is this true? 3. What is the best form of iodid to use in high blood pressure?

J. W. HOPKINS, M.D., Hinsdale, Ill.

ANSWER.—1. Insulin has established itself so definitely in therapeutics that the Council on Pharmacy and Chemistry has included it in the forthcoming edition of Useful Drugs. Under present conditions, its use should be limited apparently to the diabetic cases in which dietetic methods alone are insufficient.

2. The principle from the pancreas which has such a profound influence on sugar metabolism is broken down in the presence of trypsin. Therefore the administration of pancreatin, or desiccated pancreas, as a means of supplying this hormone to the diabetic patient is not feasible. As stated editorially in THE JOURNAL (Sept. 1, 1923, p. 752), recent reports show that desiccated pancreatic extracts, taken in capsule form by stomach, have thus far not proved to be effective in decreasing blood sugar or urinary sugar.

3. If iodids are to be administered, sodium iodid in plenty of water is generally considered preferable.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ARKANSAS: Little Rock, November 13-14. Sec., Dr. J. W. Walker, Fayetteville.
CALIFORNIA: Sacramento, October 15-18. Sec., Dr. Charles B. Pinkham, 906 Forum Bldg., Sacramento.
CONNECTICUT: New Haven, November 13-14. Sec., Dr. James E. Hair, 730 State St., Bridgeport.
DISTRICT OF COLUMBIA: Washington, October 9. Sec., Dr. Edgar P. Copeland, Stoneleigh Court, Washington.
FLORIDA: Tallahassee, October 9-10. Sec., Dr. W. M. Rowlett, Tampa.
GEORGIA: Atlanta, October 9-11. Sec., Dr. C. T. Nolan, Marietta.
ILLINOIS: Chicago, October 9-11. Supt. Mr. V. C. Michels, Springfield.
KANSAS: Topeka, October 9. Sec., Dr. Albert S. Ross, Sabetha.
MAINE: Portland, November 13-14. Sec., Dr. Adam P. Leighton, Jr., 192 State Street, Portland.
MICHIGAN: Lansing, October 9. Sec., Dr. Beverly D. Harison, 707 Stroh Bldg., Detroit.
NEBRASKA: Lincoln, November 6-8. Supt., J. D. Case, Lincoln.
NEVADA: Carson City, November 5. Sec., Dr. Simeon L. Lee, Carson City.
NEW JERSEY: Trenton, October 16-17. Sec., Dr. Alexander MacAlister, State House, Trenton.
NEW MEXICO: Santa Fe, October 8-9. Sec., Dr. W. T. Joyner, Roswell.
OKLAHOMA: Oklahoma City, October 9-10. Sec., Dr. J. M. Byrum, Shawnee.
SOUTH CAROLINA: Columbia, November 2. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.
WEST VIRGINIA: Charleston, October 23. Sec., Dr. W. T. Henshaw, Frankenberger Bldg., Charleston.
WYOMING: Cheyenne, October 8-10. Sec., Dr. J. D. Shingle, Cheyenne.

NUMBERS OF PHYSICIANS IN THE BRITISH MEDICAL REGISTER

A Review of Forty-Five Years *

Since the year 1876 the General Medical Council has kept an analytical record of the number of persons whose names were entered in, added to, or removed from the Medical Register in each twelve months. The Medical Register has been published annually since the Council was constituted under the first Medical Act of 1858; but up to 1876 no such data as those were ascertained or preserved.

In order to gain a general view of the numerical strength of the medical profession during the past forty-five years we have extracted from the tables and set down in parallel columns the total number of names in the Medical Register on December 31 of each year, and the total number added annually by registration between 1876 and 1922.

The figures for each year since 1899 are given in a statistical table published in the current Register; the corresponding figures for the earlier years have been taken from copies published previous to 1899.

Numerical State of the "Medical Register"

Year	Names Added in Year	Total No., Dec. 31	Year	Names Added in Year	Total No., Dec. 31
1876	1,009	22,713	1900	1,345	36,355
1877	940	22,841	1901	1,318	36,912
1878	996	22,600	1902	1,275	37,232
1879	996	22,516	1903	1,233	37,878
1880	1,123	22,936	1904	1,168	38,492
1881	1,053	23,275	1905	1,240	39,060
1882	1,171	23,801	1906	1,197	39,529
1883	1,304	24,517	1907	1,221	39,827
1884	1,388	25,321	1908	1,137	40,257
1885	1,377	25,998	1909	1,143	39,818
1886	1,431	26,452	1910	1,062	40,483
1887	1,531	27,246	1911	1,042	40,913
1888	1,184	27,939	1912	1,157	41,439
1889	1,305	28,348	1913	1,168	41,940
1890	1,266	29,163	1914	1,433	42,378
1891	1,345	29,555	1915	1,526	43,225
1892	1,513	30,590	1916	1,202	43,481
1893	1,579	31,644	1917	1,134	43,819
1894	1,426	32,637	1918	1,077	43,926
1895	1,446	33,601	1919	1,322	44,510
1896	1,385	34,478	1920	1,457	44,761
1897	1,230	34,642	1921	1,760	45,408
1898	1,210	35,057	1922	1,984	46,477
1899	1,351	35,836			

The following table indicates the varying proportion of registered medical practitioners to population during the period under review. It shows the total population of the British Isles at each decennial census since 1881, and the corresponding total number of names on the Medical Register.

Proportion of Practitioners to Population

Year	Registered Practitioners	Population British Isles
1881	23,275	35,241,482
1891	29,555	38,104,975
1901	36,912	41,976,827
1911	40,913	45,370,530
1921	45,408	47,261,530

These parallel columns of figures reveal a general tendency during the past forty-five years toward an increase in the ratio of doctors to population. The number of registered practitioners at the end of 1921 was almost exactly double the number at the end of 1876, but the population within that period only increased by about 50 per cent. During the year 1922 the new medical registrations numbered no fewer than 1,984, and there was a net increase of more than a thousand names. If the rate of increase is maintained in the present year, the time may not be far distant when there is one name in the Medical Register to every thousand of population.

* Reprinted from the British Medical Journal 2: 355 (Sept. 1) 1923.

Hawaii April Examination

Dr. Guy C. Milner, former secretary, Hawaii Board of Medical Examiners, reports the written examination held at Honolulu, April 9-12, 1923. The examination covered 10 subjects and included 58 questions. An average of 70 per cent. was required to pass. Of the 3 candidates examined, 1 passed, and 2 failed. The following colleges were represented:

LICENSED BY RECIPROCITY

College	PASSED	Year Grad.	Per Cent.
Kyushu Imperial University, Japan		(1920)*	†

College	FAILED	Year Grad.	Per Cent.
College of Physicians and Surgeons, San Francisco		(1901)	41
Osaka Prefecture Higher Medical School		(1914)*	40

* Graduation not verified.
† Percentage not given.

North Dakota July Examination

Dr. G. M. Williamson, secretary of the North Dakota Board of Medical Examiners, reports the oral, written and practical examination held at Grand Forks, July 3-6, 1923. The examination covered 13 subjects and included 100 questions. An average of 75 per cent. was required to pass. Four candidates were examined, all of whom passed. Three candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Northwestern University Medical School		(1922)	77.7
University of Minnesota		(1922, 2)	80.6, 85.5
University of Manitoba, Canada		(1921)	75

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
State University of Iowa College of Medicine		(1917)	Iowa
University of Minnesota		(1922)	Minnesota
Washington University		(1921)	Missouri

Vermont June Examination

Dr. W. Scott Nay, secretary, Vermont Board of Medical Registration, reports the written examination held at Burlington, June 20-22, 1923. The examination covered 12 subjects and included 90 questions. An average of 75 per cent. was required to pass. Twenty-four candidates were examined, all of whom passed. Two candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Vermont	(1918) 84.7, (1922) 84.6, (1923, 20) 85.3, 85.7, 85.9, 86, 86.2, 86.4, 86.8, 86.8, 87.1, 87.1, 87.2, 87.3, 87.8, 88.1, 88.1, 88.5, 90.1, 90.4, 91.1		79.1,
Licentiate of the Apothecaries Hall of Dublin, Ireland		(1913)	85
University of Rome, Italy		(1916)*	86.9

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Yale University		(1891)	Connecticut
Baltimore Medical College		(1903)	Maryland

* Graduation not verified.

Book Notices

HELIOTHERAPY. By A. Rollier, M.D., Medical Director of the Institutions for Heliotherapy, Leysin. With the Collaboration of A. Rosslet, D.Sc., M.D., Lecturer on Physicotherapy, Geneva University, H. J. Schmid, M.D., Radiologist at Rollier's Institutions, Leysin, and E. Amstad, M.D., Surgeon at Rollier's Institutions, Leysin. With forewords by Sir John Henry Gauvain, M.A., M.D., M.R.C.S., and Caleb Williams Saleeby, M.D., F.R.S. Cloth. Price, $8. Pp. 288, with illustrations. New York: Oxford University Press, 1923.

In 1903, Professor Rollier established the first clinic for the systematic application of the sun treatment at Leysin. In this environment, where high altitudes and sun baths were provided for patients with tuberculosis, it was found that patients progressed remarkably well. It is now Rollier's belief that, correctly understood and applied, heliotherapy fulfils the high demands of orthopedics and conservative surgery. The present volume follows to some extent previous volumes in French and German with, however, a number of changes and additions. It is preceded with special forewords by J. H. Gaudain and C. W. Saleeby. It begins with articles by Rollier on the therapeutic action and general technic of the sun baths, discusses the use of this method in tuberculosis and the contraindications, and then considers the work during and after treatment and the general hygiene of sunlight therapy. There are numerous case reports extensively illustrated, and a table of statistics giving the results for a ten year period, 1903 to 1913. In addition, there have been added to the present edition a discussion of the scientific basis of heliotherapy by Dr. A. Rosselet, a section on the roentgen diagnosis of bone tuberculosis and the use of the roentgen ray, a chapter on the control of results by H. J. Schmid, and articles by E. Omstad on radiotherapy, phototherapy and the heliotherapy of nontuberculous diseases. This volume is an outgrowth of work in the first great scientific clinic for the use of the sunlight method—a method that is now generally accepted as of value, and applied in institutions throughout the world.

DIE BLUTKRANKHEITEN IN DER PRAXIS. Von Professor Dr. P. Morawitz. Paper. Price, 40 cents. Pp. 73. München: J. F. Lehmann's, 1923.

This is Part 1 of the "Klinische Lehrkurse" of the *Münchener medizinische Wochenschrift*, which appeared in that journal in 1922. The object is to present to the general worker in a simple form the methods for his daily work and to discuss the diseases in which findings of special value may be obtained from such examination. Theoretical considerations are avoided as much as possible, attention being especially directed to the diagnosis that may be made by these simple examinations. In his discussion of the technic, the author states that the examination of the fresh specimen, the study of the stained slide, and the estimation of the hemoglobin are all that the busy practitioner needs, the cell counts being usually superfluous for his daily work. There are eleven chapters, one of which details the simple methods necessary, the others outlining the diagnosis, prognosis and treatment of various blood diseases. The book should prove of value to the general worker in his daily examinations of patients, and should show him the importance of more frequent bedside study of the blood.

THE PRINCIPLES AND PRACTICE OF PERIMETRY. By Luther C. Peter, A.M., M.D., F.A.C.S., Professor of Ophthalmology in Temple University Medical School. Second edition. Cloth. Price, $4. Pp. 281, with 166 illustrations. Philadelphia: Lea & Febiger, 1923.

Examination of the visual fields should constitute a part of every routine examination of the eye. It must be confessed that this has been too often neglected. The average ophthalmologist does not possess the necessary equipment, nor, if he does, can he spend the time necessary for a thorough perimetric examination. After a reading of this book, however, one is inspired to make better use of this valuable adjunct. The book is divided into six parts. Part 1 describes concisely the anatomy and physiology of the visual pathway. In Part 2 the physiologic principles of central and indirect vision, visual acuity and entoptic studies are discussed. The normal visual fields are described, and some of the factors entering into the technic of the examination are explained. Part 3 deals with the various methods of field taking, with descriptions of the different forms of apparatus used in perimetric study: the perimeter, the campimeter, the tangent screens, the scotometer, the stereocampimetric slate. Those who have considered the perimeter as a most refined instrument of precision in studying the visual fields will be unpleasantly surprised to read that this instrument is almost worthless in studying central defects. The point is strongly emphasized that the perimeter "is essentially adapted to the outlining of peripheral field limits"; but, for the study of central defects, that is, between the point of fixation and the blind spot of Mariotte, one of the forms of tangent screens is absolutely necessary. In the description of preexposure, illustrated with the colored plate, an unfortunate error occurs on page 60. It will be seen that the author intended to say "the left half being of a lighter shade of blue than the right half." Part 4 deals with the general pathology of the visual field, and the various forms of scotomas, hemianopias and other changes in both form and color fields. Parts 5 and 6 describe the perimetric findings seen in the many pathologic changes and in the functional nervous diseases. In the appendix, the use of the perimeter for other purposes than that of taking the visual fields is described, and the method explained of its employment to estimate the field of monocular fixation, to measure the degree of squint, the angle kappa of Landolt, diplopia, and the location of foreign bodies. The numerous engravings illustrate the field changes seen in the various pathologic conditions described. There is an unusually complete bibliography. The book is a noteworthy addition to ophthalmic literature in this special line of investigation, and the author will receive the gratitude of his fellow ophthalmologists for giving to them the results of his researches in a volume of such excellence.

REGIONAL ANESTHESIA: ITS TECHNIC AND CLINICAL APPLICATION. By Gaston Labat, M.D., Lecturer on Regional Anesthesia at the New York University. With a Foreword by William J. Mayo, M.D. Cloth. Price, $7 net. Pp. 496, with 315 illustrations. Philadelphia: W. B. Saunders Company, 1922.

The object of this work, as the author says, is "to afford the opportunity of acquiring rapidly a practical knowledge of regional anesthesia and to teach the reader how to use the method successfully." So far as the text is concerned, the author has creditably fulfilled this purpose, for the descriptions of the various technical procedures are clearly and concisely expressd, and, when possible, well selected illustrations help the reader to visualize the methods used. However, so far as acquiring a knowledge of the subject rapidly is concerned, the author repeatedly reiterates the statement that patience and experience and practice are necessary if one would become proficient. A separate chapter is devoted to intraspinal block, or spinal anesthesia. Owing to the danger connected with this procedure and to the fact that so much can be accomplished by field block and paravertebral block, the author believes that "intraspinal block should be restricted to major operations on the abdominal and pelvic organs and to those on the lower extremity that are not within the scope of local and regional anesthesia." The closing chapter is devoted to a general discussion on the value of regional anesthesia. The advantages of local anesthesia have been demonstrated so thoroughly that every surgeon should familiarize himself with the technic necessary to apply it successfully.

UEBER DIE PATHOLOGISCHE ANATOMIE DER SPIROCHAETOSIS ICTEROHAEMORRHAGICA INADA. (Weilsche Krankheit). Von Prof. Dr. Renjiro Kaneko, a. o. Prof. der I. med. Klinik der Kyushu Imperial-Universität an Sukuoka. Paper. Pp. 181, with 12 illustrations. Vienna: Rikola Verlag, 1922.

This book contains a complete account of the anatomic changes in infectious jaundice (Weil's disease), based on a thorough study of a large amount of suitable material in Japan, where the disease has been studied with marked success and its spirochetal nature discovered (Inada and Ido). The author shows himself to be a competent and reliable observer and interpreter, and the book will be a landmark to future students of the interesting disease with which it deals. In fact, for some time to come, no account of the disease will be complete that does not consider fully Kaneko's masterly contribution.

Miscellany

MR. RUDYARD KIPLING ON THE MYSTERY OF MAN

Several months ago, Sir John Bland-Sutton delivered a Hunterian oration, and Mr. Rudyard Kipling was selected to introduce him.

"There is a legend," said Mr. Kipling, "which has been transmitted to us from the remotest ages. It has entered into many brains and colored not a few creeds. It is this: Once upon a time, or rather, at the very birth of time, when the Gods were so new that they had no names, and Man was still damp from the clay of the pit whence he had been digged, Man claimed that he, too, was in some sort a deity. The Gods were as just in those days as they are now. They weighed his evidence and decided that Man's claim was good—that he was, in effect, a divinity, and, as such, entitled to be freed from the trammels of mere brute instinct, to enjoy the consequence of his own acts. But the Gods sell everything at a price. Having conceded Man's claim, the legend goes that they came by stealth and stole away this godhead, with intent to hide it where Man should never find it again. But this was none so easy. If they hid it anywhere on Earth, the Gods foresaw that Man, the inveterate hunter—the father, you might say, of all hunters—would leave no stone unturned or wave unplumbed till he had recovered it. If they concealed it among themselves, they feared that Man might in the end batter his way up even to the skies. And, while they were all thus at a stand, the wisest of the Gods, who afterward became the God Brahm, said, 'I know. Give it to me!' And he closed his hand upon the tiny unstable light of Man's stolen godhead, and when that great hand opened again, the light was gone. 'All is well,' said Brahm, 'I have hidden it where Man will never dream of looking for it. I have hidden it inside Man himself.' 'Yes, but whereabouts inside Man have you hidden it?' all the other Gods asked. 'Ah,' said Brahm, 'that is my secret, and always will be unless and until Man discovers it for himself.'"

Mr. Kipling continued by pointing out that it is the search for an unlocated spiritual area in man that has preoccupied the student from the earliest time. The priest and the lawyer have probed for it through the ages but, more than any other, the medicine man has been the hottest on its track. It was this which led to scientific research. "Man, always the hunter, went up against the darkness that cloaked him and every act of his being, to find out what order of created being he might be. He called it scientific research. It was the old quest under a new name. But, this time, the seekers who headed it, unlike the priest and the lawyer, admitted that they knew very little. Experience had taught them to be humble. For that reason their knowledge was increased. They moved forward into areas of the body which, till then, had denied themselves to Man's hand. They were turned back, without explanation, from other areas which, as yet, would tolerate no spying. They were bewildered by mysteries which, under some new marriage of observation upon accident, or some predestined slip of the knife, resolved into mysteries profounder still. Is it any wonder that the old dreams come back? The dream of the essential unity of all created things—the dream that some day that which men called life might be led into matter which men called dead—the boldest dream of all, that eventually Man might surprise the ultimate secret of his being where Brahm had hidden it, in the body of Man."

Mr. Kipling concluded with a tribute to the scientific surgeon of today: "Is it any wonder, gentlemen, . . . that your calling should exact the utmost that man can give—full knowledge, exquisite judgment and skill in the highest, to be put forth, not at any self-chosen moment, but daily at the need of others? More than this. Your dread art demands the instant impersonal vision which in one breath, one beat of the pulse, can automatically dismiss every preconceived idea and impression, and as automatically recognize, accept and overcome whatever of new and unsuspected menace may have slid into the light beneath your steadfast hand.

"But such virtue is not reached or maintained except by a life's labor, a life's single-minded devotion. Its reward is not only the knowledge of mastery and the gratitude of the layman, which may or may not bring content. Its true reward is the dearly prized, because unpurchasable, acknowledgment of one's fellow craftsmen."

Medicolegal

Hospital Not Proved Liable for Smallpox

(Gadsden General Hospital v. Bishop (Ala.), 96 So. R. 145)

The Supreme Court of Alabama, in reversing a judgment obtained by Mrs. Bishop, who sued as administratrix to recover damages for the death of her husband from smallpox alleged to have been contracted in the defendant hospital, says that there was no substantial evidence on which to base a verdict for the plaintiff. In order to recover under the complaint in this case, the essential facts therein alleged must be established: (1) that the plaintiff's husband died of smallpox; (2) that he contracted the disease while he was a patient in the defendant hospital; (3) that this resulted from infection communicated to him from another patient who was in the hospital during his presence there; (4) that the defendant's nurses, agents or servants who controlled or managed the hospital knew that such other patient was affected with smallpox, and (5) that they so negligently handled the patient that they negligently exposed Mr. Bishop to infection from him.

Mr. Bishop entered the hospital, March 1, for a surgical operation, and on March 6 returned to his home. March 14 or 15, he became delirious and had a high fever. Four days afterward a rash appeared, and there was a diagnosis of smallpox. Death followed, April 1. Conceding, for the argument, that the jury was justified in finding, as an inference of fact, that Mr. Bishop contracted smallpox while in the hospital from some source of infection to which he was therein exposed, there was nevertheless no rational basis shown for a finding that there was any case of smallpox in the hospital during his presence there. A bumpy or scabby faced man, whose presence in a room or in the hallway was noted by three witnesses, was undoubtedly identical with a patient whose physician said that he did not have smallpox, but was of a pimply type and was being treated for influenza. To diagnose his case, from the mere description of his bumpy, scabby or scaly face, could not, under the evidence, be more than the sheerest conjecture. If expert physicians, accustomed to seeing and treating smallpox in all of its stages, are unable to make a reliable diagnosis of the disease from such an appearance alone, without continued observation, this court is at a loss to understand how a jury of laymen can do so, in view of the baffling resemblance to several other common diseases of the skin, such as chickenpox, acne and syphilis. The most that can be said is that such an appearance may possibly be the result of smallpox.

Nor does this court think that the conclusion could be supported that any of the employees of the hospital, including the nurses, knew of the existence of any case of smallpox in the hospital. If the existence of such a case had been established by direct evidence, instead of by conjectural inference merely, it might be that the jury could have reasonably inferred knowledge of its existence on the part of the employees, dependent, of course, on the circumstances of its discovery and notoriety. But to ground a verdict first on an inference that a case of smallpox existed, and then, cumulatively, on the further inference that employees knew of its presence merely and solely because of its conjectural existence, is to violate a well settled principle of law that an inference cannot be grounded on an inference, that is, one fact cannot be inferred from another fact which itself is but an inference.

In this court's view of the case, it was unnecessary to determine whether, in the trial judge's oral charge to the jury, he improperly extended the duty of nurses in a hospital of this character (one having no house surgeon or medical experts

of any kind, and not attempting to diagnose the ailments of patients received), by the assumption that they might discover that the physician in charge of any patient had erroneously diagnosed the case as noninfectious; and by the requirement that, on such supposed discovery, they should, in disregard of the physician's opinion, treat the case as infectious.

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Otolaryngology, Washington, D. C., Oct. 15-20. Dr. Luther C. Peter, 1529 Spruce St., Philadelphia, Secretary.

American Association of Railway Surgeons, Chicago, Oct. 18-20. Dr. L. J. Mitchell, 29 E. Madison St., Chicago, Secretary.

American Child Health Association, Detroit, Oct. 15-17. Dr. Philip Van Ingen, 125 East 71st St., New York, Secretary.

American College of Surgeons, Chicago, Oct. 22-26. Dr. Franklin H. Martin, 40 E. Erie Street, Chicago, Secretary.

American Public Health Association, Boston, Oct. 8-11. Mr. A. W. Hedrich, 370 Seventh Avenue, New York, Secretary.

Central Neuropsychiatric Association, St. Louis, Oct. 20. Dr. Karl A. Menninger, Topeka, Kan., Secretary.

Central States Pediatric Society, Detroit, Oct. 18-19. Dr. H. T. Price, Westinghouse Building, Pittsburgh, Pa., Secretary.

Delaware State Medical Society, Middletown, Oct. 8-9. Dr. W. O. La Motte, Industrial Trust Building, Wilmington, Secretary.

Medical Association of the Southwest, Kansas City, Mo., Oct. 8-13. Dr. E. H. Skinner, Rialto Building, Kansas City, Mo., Secretary.

Minnesota State Medical Association, St. Paul, Oct. 10-12. Dr. Carl B. Drake, Guardian Life Building, St. Paul, Secretary.

Mississippi Valley Medical Association, Hot Springs, Ark., Oct. 9-11. Dr. John L. Tierney, University Club Bldg., St. Louis, Secretary.

New England Surgical Society, Boston, Oct. 18-19. Dr. P. E. Truesdale, 151 Rock Street, Fall River, Mass., Secretary.

Southern Medical Association, Washington, D. C., Nov. 12-15. Mr. C. P. Loranz, Empire Building, Birmingham, Ala., Secretary.

Tri-State District Medical Society, Des Moines, Iowa, Oct. 29-Nov. 1. Dr. William B. Peck, 82 Stephenson Street, Freeport, Ill., Managing Director.

Vermont State Medical Society, Bennington, Oct. 11-12. Dr. W. G. Ricker, St. Johnsbury, Secretary.

Virginia, Medical Society of, Roanoke, Oct. 16-19. Mr. G. H. Winfrey, 104½ W. Grace St., Richmond, Secretary.

AMERICAN ASSOCIATION OF OBSTETRICS, GYNECOLOGISTS AND ABDOMINAL SURGEONS

Thirty-Sixth Annual Meeting, held at Philadelphia, Sept. 19-21, 1923

The President, Dr. Gordon K. Dickinson, Jersey City, N. J., in the Chair

Acute Pancreatitis

Dr. Lewis F. Smead, Toledo, Ohio: Acute surgical conditions of the pancreas include the true cases of inflammations of the pancreas and pancreatic necrosis which is not essentially inflammatory. Inflammatory pancreatitis is, of course, due to infection, but pancreatic necrosis is probably the result of the escape of activated pancreatic ferments into the pancreas and surrounding tissues. The activating agents may be bile or duodenal contents reaching the pancreas through the ducts of Wirsung or Santorini, or infection reaching the pancreas through the blood or the lymph channels. The cause of the profound shock and early death is the absorption of autolyzed pancreatic tissue. The diagnosis of pancreatic necrosis is difficult, as there are no pathognomonic signs or symptoms. The most helpful points in diagnosis are the excruciating pain, the extreme prostration and the extension of the epigastric tenderness to the left of the midline. The object of surgical intervention is to drain away the dangerous toxic substances; prevent, if possible, the extension of the pathologic process in the pancreas, and avoid future attacks. The actual surgical procedure consists in evacuation of the peritoneal exudate, incision and drainage of collections of fluid in and about the pancreas and in the lesser peritoneal cavity, and drainage of the gallbladder. Cholecystectomy and removal of stones from the common duct are to be done only at a later time to prevent further attacks of the trouble.

Is Cesarean Section Justifiable in Ablatio Placentae?

Dr. John Osborn Polak, Brooklyn: Ablatio placentae is a relatively common accident. Previous toxemia is a predisposing factor. Many of the cases have an apoplectic origin from torsion of the uterus, and very few can be attributed to trauma. The symptom complex is constantly present and makes the diagnosis, which may be confirmed on vaginal examination by the escape of serum, blood or clots. Clinically, this accident presents two general classes, the nontragic and the tragic cases. In the former, intelligent expectancy in conjunction with rupture of the membranes, a tight abdominal binder, and pituitary extract will effect spontaneous delivery. In the tragic cases which show progressive hemorrhage, fall in blood pressure and hemoglobin percentage, section after transfusion is the procedure of choice. The decision between hysterotomy and hysterectomy depends on the condition of the uterine muscle.

Fulguration of Hunner Ulcers of Bladder

Dr. H. Dawson Furniss, New York: All possible foci of infection should be removed. Resection is a formidable operation, with, at times, spectacular and, at times, dismal failures. Fulguration is a simpler method of dealing with the problem and should be tried first. The results are frequently most gratifying. At least, temporary relief can be counted on, and if there is recurrence the ulcer can be fulgurated again. The willingness of the patients to submit to second and third fulgurations is a convincing testament of the relief they receive. Until something better is discovered, we shall continue fulguration. In reviewing my own results, I find that the greatest relief and the best looking bladders are those in which the fulguration was the most thorough. These were fulgurated under sacral anesthesia through the air distended bladder. With increased experience and perfecting of technic, I feel that we can anticipate even more satisfactory results than those already obtained.

The Use of Roentgen-Ray Therapy in Disturbed Menstruation

Dr. Abraham J. Rongy, New York: Five patients definitely improved under roentgen-ray treatment, the menstrual function having been reestablished and being normal as to time and duration. One patient had not menstruated eighteen months prior to the treatment. These results warrant the use of stimulating doses of roentgen ray in cases of menstrual irregularities caused by ovarian dysfunction. The cases must be selected carefully by the gynecologist, and the treatment must be given by an expert radiologist.

The Time for Operation in Ectopic Gestation

Dr. Thurston Scott Welton, Brooklyn: Nothing is gained by operating while the patient is in shock. The fact that a patient did not die at the time of her initial collapse denotes that she will respond, to a certain degree, to treatment. All of these patients in shock should be given a trial to demonstrate what they can do by way of making a recovery. This is well shown by systolic pressure readings. In all unruptured cases, surgery is the rule. When the pressure continues to fall, in spite of treatment, surgery is imperative. When the pressure reacts to 115 mg. at the maximum, operation is indicated. In a pressure permitted to return to normal limits, the sealing clot may be disturbed and renewed hemorrhage and shock occur. In the moribund type of patient, with an initial pressure of 50 mg. or lower, the rise under treatment is never back to normal limits. A pressure that rises and then remains stationary calls for surgery. The time we wait while a pressure remains stationary depends on the type of case, and is governed by the experience of the operator. Any pressure that rises and then begins to fall calls for immediate surgery. The action of the systolic pressure is a good index of the patient's condition. Records, to date, are for the most part unreliable, as the recorded clinical data are inadequate.

Extraperitoneal Cesarean Section

Dr. Asa B. Davis, New York: The sooner the general public, both lay and medical, realized that reproduction is potentially, and in 10 per cent. of the cases, actually a pathologic process, and act accordingly, the sooner parturition will be removed from the position which it now holds in this country, as, next to tuberculosis, the cause of the greatest number

of deaths. Every pregnant woman should be under competent obstetric care and instruction from soon after conception, through gestation, labor and the puerperium, which should continue until everything possible has been done to restore her to her normal activities of life in good condition. The emergency obstetric case should disappear. It is this type of case that magnifies the morbidity and mortality of obstetric records. So long as such cases do occur, the well equipped maternity hospital should receive the patients, even though death apparently is imminent. With such aid, some patients in a seemingly hopeless condition will recover.. There should be some way of checking up the activities of the physician who is repeatedly showing bad results. Preventive medicine in obstetrics should be a widely broadcast slogan. The public should be taught to be more critical of obstetric results, and not to accept so complaisantly dreadful injuries to mother and child, or death of one or both, as the will of an overworked providence. Extraperitoneal cesarean section will save some lives that would otherwise be lost. Classical cesarean section would have saved but few of the cases reported.

Roentgen-Ray Diagnosis of Normal and Abnormal Pregnancies

DRS. EDWARD SPEIDEL and HENRY H. TURNER, Louisville, Ky.: In the early months of pregnancy, absence of menstruation, softening of the uterus and Hegar's sign are the symptoms that are available for a diagnosis. During this stage the roentgenogram with pneumoperitoneum will aid in the diagnosis, by showing enlargement of the uterus and distinct enlargement of the isthmus. An extra-uterine pregnancy can be diagnosed in the early stage. Ovarian cysts, with or without the pregnant uterus, are clearly pictured by pneumoperitoneum. Roentgen-ray pelvimetry, although more accurate than the usual method, is not practical as yet because of the complicated measures that are necessary to arrive at a result. In moderately contracted pelves, the roentgen ray gives an outline of the superior strait and makes it possible to determine whether a normal delivery is feasible, whereas in gross pelvic deformities one is enabled before labor to map out a definite method of delivery. Not until the fifth month is the density of the ossification centers great enough to show definitely in a roentgenogram; but after that time, with the modern improvements in technic, it should be possible in all instances to show the fetal outlines. The roentgen ray, by showing the fetal outlines, becomes the most positive means of diagnosing multiple pregnancy. Changes in the presentation of the fetus near the onset of labor and even in labor have been demonstrated by the roentgen ray.

Hepatitis in Its Relation to Inflammatory Disease of the Abdomen

DRS. CHARLES GORDEN HEYD, WARD J. MACNEAL and JOHN A. KILLIAN, New York: We are convinced that there are certain types of liver change that are associated with chronic abdominal infection and which render the patient somewhat of an invalid even after successful surgical intervention. When we found macroscopic liver changes present, these pathologic changes were uniformly distributed throughout the right lobe of the liver, and at the same time there was always evidence of the same pathologic process in the left lobe, but ordinarily of less intensity than in the right lobe. It occasionally happened that the liver changes were much more marked than the associated changes in the gallbladder, appendix or stomach. The changes in the abdominal viscera were quite minimal compared to those encountered in the liver. Clinically, we could divide the abdominal condition into acute, subacute and chronic inflammation. So far as the gallbladder was concerned as an etiologic factor in hepatic change, it did not seem to make much difference whether stones were present or absent. The essential element was apparently, first, chronicity of the infective processes; second, the persistence of a certain degree of intensity of the offending agent, chemical or biochemical. In catarrhal types of appendicitis and cholecystitis, the evidence obtained from inspection of the liver consisted in a thickening of the capsule, with occasional adhesions, with thickening of the anterior border, with crenation, swelling and surface dimpling. In localized gallbladder disease, the changes in the area of the gallbladder region were more intense than elsewhere, and the quality of the change varied inversely with the distance from the gallbladder.

Is Eclampsia a Biologic Necessity?

DR. O. M. GRUHZIT, Detroit: The laws of heredity determine the blood group of the offspring. The incidence of incompatability between maternal and fetal blood groups is limited, and may occur only in limited blood group unions of parents. In normal pregnancies examined, the blood grouping was such as to exlude the possibility of interagglutination between the maternal and the fetal blood. In the majority of clinically diagnosticated cases of eclampsia, the maternal and fetal blood grouping was incompatible. High blood viscosity was found in eclampsia with incompatible maternal and fetal blood. Low viscosity and compatible maternal and fetal blood were found in the "nephritic type of toxin." The high viscosity of blood in iso-agglutination toxemias probably is due to the passage of incompatible blood elements from the fetus into the mother's blood stream. The new colloidal condition of blood in eclampsia produces congestion, stasis and edema, which are followed by lowered body function in general and especially of basal metabolism. As a sequence to the lowered metabolism, hydrolysis of proteins and oxidation processes of carbohydrate compounds are slowed. This leads to the appearance of acidosis. The thick blood and spasticity of the capillaries lead to high blood pressure, stasis, edema, acidosis and convulsions.

Study of Three Hundred Cases, Six Weeks or Longer, Post Partum

DR. BURNLEY LANKFORD, Norfolk, Va.: In 225 out of 300 cases, appreciable lacerations of the cervix were found. The problem to be worked out here, in the interest of better obstetrics, is to prevent the cervical laceration, which is far more ideal than a repair, no matter whether the repair is immediate or later. One hundred and nineteen cases showing some abnormality in the position of the fundus, in seventy-four, the fundus was completely displaced backward. All but five of these seventy-four uteri were put back into approximately normal position and remained so. This seems to show that a very large number of women develop backward displacement after parturition, but also that such a condition is easily amenable to proper treatment. Here we undoubtedly have a large field for better obstetrics, first, in the effort to prevent such displacements, and, secondly, in the recognition and treatment at the end of the period of involution. There is little doubt that the majority of women who develop backward displacement after child-bearing will eventually need the aid of surgery to make them comfortable, or to put them in a condition of ordinary physical efficiency.

Cutting the Ileocecal Fold as a Routine Measure in in the Operation for Appendicitis

DR. GEORGE F. CHANDLER, Kingston, N. Y.: Many authors experimented with glove fingers and rubber tubes, and finally came to the conclusion that the triangular fold, containing some fatty tissue, which extends about an inch or more along the terminal end of the ileum, extending to the cecum, interfered with the proper function of the valve; that this fold kept the ileum from freely protruding into the cecum enough to allow the fold of mucous membrane to close the opening properly. Cunningham, in the latest edition of his "Anatomy," calls this the ileocecal fold. It has been called the "bloodless fold of Treves"; also the ileo-appendicular fold of Jonnesco. I began to cut this fold in the following way: I placed an artery clamp on the ileac side and another on the cecal side, and with a pair of scissors cut right through to the junction of the ileum with the cecum. In other words, I cut from the middle of the base of this triangular fold to its apex and tied off each free segment with eatgut, and removed the clamps. There is little vascular supply in this fold. I now do this as a routine procedure in all cases of appendicitis that have not become gangrenous, because since the adoption of this little practice I have yet to have one patient return without benefit from the operation.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

26: 103-194 (Aug.) 1923

*Proof of Regulatory Influence of Cod Liver Oil on Calcium and Phosphorus Metabolism. E. A. Park, R. A. Guy and G. F. Powers, New Haven, Conn.—p. 103.
History of Cod Liver Oil as Remedy. R. A. Guy, New Haven, Conn.—p. 112.
Anatomic Basis for Interpreting Roentgenograms in Rickets. A. A. Weech and M. S. Smith, Baltimore.—p. 117.
*Sickle Cell Anemia; Report of Two Cases in Children, with Necropsy in One Case. V. P. Sydenstricker, W. A. Mulherin and R. W. Houseal, Augusta, Ga.—p. 132.
*Rickets in Infant Aged Thirty-Four Days. E. C. Dunham, New Haven, Conn.—p. 155.
Malignant Epithelial Thyoma: Report of Case, with Necropsy. N. C. Foot and H. Harrington, Cincinnati.—p. 164.
*Kottmann Reaction in Children: Treatment of Chorea with Thyroid. J. D. Lyttle and L. P. Sutton, New York.—p. 179.
*Treatment of Infantile Tetany with Ultraviolet Radiation. Its Effect on Clinical Symptoms and on Calcium Concentration in Blood Serum. L. A. Hoag, Boston.—p. 186.

Regulatory Influence of Cod Liver Oil on Calcium and Phosphorus Metabolism.—The experiments made by Park, Guy and Powers show that when radiant energy and the organic factor contained in cod liver oil are deficient, certain disproportions in the calcium and phosphorus of the diet produce corresponding disproportions in the concentration of these elements in the blood serum. The experiments demonstrate, in a striking manner, the regulatory power of cod liver oil on the calcium and phosphorus metabolism of the organism. The changes in the concentration of the calcium and inorganic phosphorus of the blood serum which occurred under the influence of cod liver oil were striking in degree. No less striking was the constancy with which the concentrations moved toward those found in the blood of healthy rats on ordinary diets. Cod liver oil not only acts as a regulator of the calcium and phosphorus metabolism, but also permits the organism to operate with greatly increased economy. Obviously, cod liver oil makes the metabolic processes of the body, in respect to calcium and phosphorus, vastly more efficient. According to the authors' conception, in the absence of the facts or factors contained in cod liver oil, and in the absence of radiant energy, the organism is laboring under a load, and the changes in the calcium and phosphorus metabolism resulting from the administration of cod liver oil are to be thought of as the result of the release from the load. The healing brought about by cod liver oil in rickets probably denotes, in reality, the manifestation of a restoration of normal function. Cod liver oil or radiant energy cannot be regarded in any sense as exerting a specific influence on calcium and phosphorus metabolism. The similarity between the action of cod liver oil and that of radiant energy in rickets is so close that a connection must exist between them. So far as the calcium and phosphorus metabolism of the body are concerned, cod liver oil seems to be a substitute for radiant energy.

Sickle Cell Anemia.—Two cases of sickle cell anemia occuring in negro children are reported by Sydenstricker, Mulherin and Houseal. Necropsy in one case revealed hitherto undescribed changes in the bone marrow which suggest that the changes in the blood are dependent on a primary defect of blood formation. There is evidence of active hemolysis of erythrocytes in addition to disturbances in erythropoiesis. Several members of the patient's family in each case showed changes in the blood analogous to those presented by the patient. No similar changes in the blood of white persons have been described. The authors feel warranted in stating that sickle cell anemia is a definite clinical entity, characterized by a definite symptom-complex and by specific blood findings and anatomic changes, and that it is a familial disease. There is strong evidence that it occurs only in the negro race, or in persons of mixed blood.

Rickets in Young Infant.—In Dunham's case rickets was well developed at the age of 34 days. Craniotabes was so marked that from it alone the diagnosis could be made. Roentgenograms of the wrists and ankles revealed indisputable evidences of advanced rickets. The blood at that time showed a normal calcium, but a low inorganic phosphorus. It is thought that 34 days is the earliest age at which rickets has ever been proved to be present.

Kottmann Reaction in Children.—The Kottmann test was performed by Lyttle and Sutton on 106 children. Twenty-eight children presenting miscellaneous conditions were chosen as controls, of whom twenty-one were normal. Of the three retarded reactions, two could be explained on the basis of medication (sodium bromid and calcium chlorid). Of thirty-three cases of acute infection, only thirteen gave normal Kottmann reactions. The group of endocrine cases was unsatisfactory, and no conclusions could be drawn from the results. In the group of cardiac cases, the predominating reaction was acceleration, probably from the lowered vitality of the children. Because of the findings in the fifteen cases of chorea, administration of thyroid is suggested as a possible aid in treatment.

Ultraviolet Radiation in Infantile Tetany.—Because infantile tetany is only temporarily improved by the use of hydrochloric acid producing substances (calcium chlorid, ammonium chlorid and hydrochloric acid), an investigation of two agents which might be expected to give more permanent relief was undertaken by Hoag. The exacting standard of a return of the serum-calcium concentration to 9.5 or 10.0 mg. in 100 c.c. was used to judge the completeness of the cure. Cod liver oil caused a gradual increase in the calcium of the serum over a period of several weeks. In eleven patients with infantile tetany, ultraviolet rays applied in amounts approaching the limit of tolerance, and unaccompanied by other treatment, caused progressive and permanent relief of the clinical symptoms, paralleled by the return of the serum calcium concentration to an essentially normal figure. With the mercury vapor lamp at a distance of 50 cm., the average total exposure necessary to cause an increase of serum calcium of 1.0 mg. in 100 c.c. was fifty minutes. An average of fourteen days was required for the calcium to rise from its initial low figure to about 9.5 mg. in 100 c.c. of serum. This rise was proportionally more rapid in the cases having the lowest initial concentration of calcium.

American Journal of Physiology, Baltimore

65: 419-640 (Aug.) 1923

*Excretion of Water by Kidneys. E. F. Adolph, Pittsburgh.—p. 419.
Influence of Combinations of Inorganic Salts and of Variations in Hydrogen Ion Concentration Heliotropic Response of Arenicola Larvae. R. S. Lillie and C. E. Shepard, Cleveland.—p. 450.
*Insulin and Glycolysis. G. S. Eadie, J. J. R. MacLeod and E. C. Noble, Toronto.—p. 462.
Physiologic Evidence of Existence of Nonvisual Afferent Mechanism in Eye. I. Vasomotor Responses to Intense Light. C. I. Reed, Lawrence, Kan.—p. 477.
*Biologic Food Tests. III. Changes in Vitamins A and B of the Globe Artichoke Due to Various Canning and Drying Processes. A. F. Morgan and H. D. Stephenson, Berkeley, Calif.—p. 491.
*Pathogenesis of Tetany. III. Exciting Factors in Experimental Tetany in Dogs. L. R. Dragstedt, K. Phillips and A. C. Sudan, Chicago.—p. 503.
*Simultaneous Changes in Blood Pressure in Carotid Artery and Jugular and Portal Veins in Anaphylactic and Peptone Shock in Dog. J. P. Simonds, Chicago.—p. 512.
Effect of High and Low Temperatures on Catalase Content or Paramecium and Spirogyra. W. E. Burge, Urbana, Ill.—p. 527.
Visceral Sensory Nervous System. XV. Innervation of Cardia in Macaccus Monkey. A. J. Carlson and S. Litt, Chicago.—534.
*Renal Tubule Function. III. Excretion of Sulphate. Modified Technic for Determination of Inorganic Sulphate in Blood or Plasma. H. L. White, St. Louis.—p. 537.
Sensibility of Eye to Differences in Wave Length. H. Laurens and W. F. Hamilton, New Haven, Conn.—p. 547.
Sensibility of Fatigued Eye to Differences in Wave Length in Relation to Color Blindness. W. F. Hamilton and H. Laurens, New Haven, Conn.—p. 569.
Temporal Variation in Function of Gyrus Precentralis in Primates. K. S. Lashley, Minneapolis.—p. 585.
Conditioned Reflexes and Pathways in Spinal Cord. J. M. Lang and J. M. D. Olmsted, Toronto.—p. 603.
*Influence of Temperature Changes on Secretion of Epinephrin. F. A. Hartman and W. B. Hartman, Buffalo.—p. 612.
*Production of Epinephrin by Suprarenal Cortex. F. A. Hartman and W. E. Hartman, Buffalo.—p. 623.

Excretion of Water by Kidneys.—Adolph has studied this problem on himself and records his observations. The human

kidneys exhibit a definite limit in their powers of concentrating the urine. This limit is characteristic and identical for each substance which they excrete, such as chlorid, phosphate, urea and bicarbonate. There is also another limit to the total concentration of substances in the urine. The mechanisms concerned in its production are not yet clear. The rate at which water is catabolized by the tissues has been found normally not to equal the rate at which the kidneys demand it to aid in the excretion of dissolved substances. It is usually demanded for the excretion of chlorid rather than for the excretion of urea; the former is the chief factor in determining the urinary volume. Since the volume of water in urine is constantly proportional to the amount of dissolved substance in it, diuresis is an exact measure of the substances in blood which have changed the blood's composition from normal. At a given moment diuresis is proportional to the increment above normal which demands excretion; the increment being the excess osmotic concentration of particulate concentration in the blood. The chemical control of the kidney's activities can nearly always be measured by the variations in rate of water excretion. A study of isotonic solutions has shown that their excretion is as reliable a measure of changes in blood composition as certain actual changes in blood measured by other workers. Water excretion, therefore, gives a fairly complete picture of the measurable variations in blood composition. It is not influenced by changes in blood volume or body volume.

Insulin and Glycolysis.—Eadie and his associates found that the addition of insulin to the defibrinated blood of the rabbit and dog does not affect the rate of glycolysis in vitro. This is true also for blood removed from these animals after injecting insulin, both when the blood is removed within a few minutes after injecting the insulin and when it is removed after the hypoglycemia has become pronounced. Addition of insulin to mixtures containing blood or sodium chlorid solution and Buchner extract of muscle does not alter the rate of glycolysis. Glycolysis is the same in mixtures made from normal animals as in those made from animals recently injected with insulin. Insulin does not influence the rate of glycolysis in a suspension of leukocytes.

Effect of Canning and Drying on Vitamins.—Destruction of vitamin A in artichoke by canning and drying appears to be relatively small. The destruction of vitamin B, however, appears to be relatively rapid, and to be effected more completely by long exposure to relatively low temperatures, as in drying and fractional canning processes, than by shorter exposure to higher temperature as in the pressure process.

Pathogenesis of Tetany.—The experiments described by Dragstedt, Phillips and Sudan demonstrate that there is close similarity, if not identity, between experimental tetany in animals and various types of clinical tetany in man. The exciting factors which were found to precipitate tetany in animals that survived total parathyroidectomy are definitely considered to have an etiologic relation to tetany in man. This fact suggests that in clinical tetany there is present an underlying parathyroid deficiency which makes the individual susceptible to diverse intoxications. In any case tetany must be looked on as a pathologic condition due to the accumulation of toxic substances in the blood stream in excess of the capacity of the physiologic detoxicating mechanism to care for them.

Blood Pressure in Peptone Shock.—An analysis made by Simonds of the manifestations of anaphylactic and peptone shock in the dog strongly suggests an obstruction to the flow of blood through the liver, the obstruction being so located as to become effective after the blood had passed through the sinusoids. A study of the hepatic vein in the dog reveals the fact that it contains a relatively huge mass of smooth muscle. This smooth muscle occupies a strategic position with reference to the circulation of blood not unlike that which the very large mass of nonstriated muscle in the wall of the bronchioles of the guinea-pig occupies to the circulation of air in the lungs. Smooth muscle is very sensitive to peptone and to any foreign proteid to which the animal has been sensitized. It is generally accepted that anaphylactic shock in the guinea-pig is due to the contraction of the mass of smooth muscle in the wall of its bronchioles. It appeared possible that the manifestations of anaphylactic and peptone shock in the dog might be the results of contraction of the mass of nonstriated muscle in the hepatic vein. Experiments have, therefore, been carried out by Simonds to determine what part, if any, constriction of the hepatic veins may play in anaphylactic and peptone shock in the dog. The results of a study of blood pressure changes, taken simultaneously in the carotid artery and jugular and portal veins, are recorded.

Function of Renal Tubule.—A modification of Fiske's technic for the determination of sulphate in urine is described by White, making it applicable to citrated blood or plasma. The concentration ratio of sulphate is compared with that of urea, phosphate and of sugar in the phlorhizinized dog. The elimination of sulphate is compared through several consecutive periods with the elimination of urea, phosphate and of sugar in the phlorhizinized dog. Evidence is discussed leading to the conclusion that urea, phosphate, sulphate and sugar in the phlorhizinized dog are eliminated in part by glomerular filtration and in part by tubular secretion.

Influence of Temperature Changes on Secretion of Epinephrin.—By the use of the completely denervated iris as an indicator of increased epinephrin secretion, the following observations have been made by the Hartmans. Immersion of cats in water ranging in temperature from 39 to 45 C. does not appear to increase epinephrin discharge. Cooling the skin of an animal by ice, by immersion in cold water or by evaporation of water from the skin causes an increase in the output of epinephrin. Although sometimes accompanied by excitement and struggling, the increased epinephrin discharge can take place without these. Therefore, cold seems to produce an effect of its own and does not do so through the mediation of excitement or muscular activity. Peripheral stimulation, rather than the fall in general body temperature, seems to be the cause of the increase in epinephrin that occurs with cooling. The magnitude of the increased output of epinephrin seems to depend on the stimulus and the extent of the skin area stimulated. No evidence could be found that the increase in the output of epinephrin is sufficient to play a part in the concentration of the blood that results from cooling.

Production of Epinephrin by Suprarenal Cortex.—The Hartmans present evidence to show that epinephrin appears to be produced in the suprarenal cortex.

American Journal of Psychiatry, Baltimore

3: 1-148 (July) 1923

Review of Service Patients in Mental Hospital. D. K. Henderson and R. D. Gillespie, Glasgow.—p. 13.
Kidney Malformations in Mentally Disordered. Case of Congenital Cystic Kidneys and Liver. N. D. C. Lewis, Washington, D. C.—p. 65.
Hemiplegias without Visible Brain Lesions in Pneumonias of Insane. M. M. Canavan, Boston.—p. 81.
Psychoneuroses: Their Nature and Treatment. A. F. Riggs, Stockbridge, Mass.—p. 91.
*Studies on Cerebrospinal Fluid with Acetic Anhydrid-Sulphuric Acid Test. O. H. Boltz. Wards Island, N. Y.—p. 111.
*Relation of Puberty to Behavior and Personality in Patients with Dementia Praecox. C. E. Gibbs, Wards Island, N. Y.—p. 121.

Acetic Anhydrid Sulphuric Acid Test for Cholesterol.—The acetic anhydrid sulphuric acid test described by Boltz is essentially a modification of Liebermann's test for cholesterol. To 1 c.c. of spinal fluid, add 0.3 c.c. of acetic anhydrid, drop by drop, and 0.08 c.c. of concentrated sulphuric acid, drop by drop. The tube is shaken well. A blue pink or lilac color is positive. The test is 100 per cent. positive with spinal fluids from cases of general paralysis. Among psychiatric cases, the test was found positive predominately in cases of neurosyphilis. The more advanced and active the syphilitic condition of the central nervous system, the more positive will be the reaction. In psychoses not due to or complicated with syphilis, and of a functional nature, the test is negative. The test differentiates two groups of tabetics, one giving a negative reaction, the other showing a slightly positive reaction. In four cases of neurosyphilis with a negative spinal fluid Wassermann reaction the test was positive.

Relation of Puberty to Behavior in Dementia Praecox.—Cases are reported by Gibbs in which a definite change in personality appeared at puberty, with the actual psychosis developing later. In most cases there was also a history of rapid growth or other disturbance of metabolism at puberty. The relation of puberty to psychopathic behavior is discussed. In certain cases of dementia praecox it is difficult to determine whether seclusive behavior appearing at puberty is a part of the personality or of the psychosis.

American Journal of Public Health, Detroit

13: 627-721 (Aug.) 1923

Public Health in Orient. W. W. Peter, Shanghai, China.—p. 627.
Trend of Maternal and Child Hygiene. W. H. Brown, Mansfield, Ohio.—p. 636.
Sanitary Index. D. M. Lewis, New Haven, Conn.
Changes in Mortality in Last Two Decades in New England, New York, New Jersey, Michigan, Indiana and District of Columbia. E. Foundray, Washington, D. C.—p. 654.
Preliminary Studies of Fauna of Imhoff Tank. L. A. Hausman, New Brunswick, N. J.—p. 656.

Archives of Internal Medicine, Chicago

32: 157-312 (Aug.) 1923

*Water Intoxication. L. Rowntree, Rochester, Minn.—p. 157.
*Benzoate Test for Renal Function. F. B. Kingsbury, Minneapolis.—p. 175.
*New Method for Accurately Determining Clotting Time of Blood. M. F. Petersen and C. A. Mills, Cincinnati.—p. 188.
Induction of Premature Contractions and Auricular Fibrillation by Forced Breathing Associated with Change in Location of Pacemaker. F. M. Smith and W. B. Moody, Chicago.—p. 192.
*Relationship of Excess of Uric Acid in Blood to Eczema and Allied Dermatoses. J. F. Schamberg and H. Brown, Philadelphia.—p. 203.
Clinical Method (Centrifuge) for Estimation of Protein in Urine and Other Body Fluids. M. C. Shevky and D. D. Stafford, San Francisco.—p. 222.
*Studies of Diabetes Mellitus. II. Results of Treatment by Diet Adjustment and Ketogenic-Antiketogenic Balance. W. S. McCann, R. R. Hannon, W. A. Perlzweig and E. H. Tompkins, Baltimore.—p. 226.
Cases of Calcareous Degeneration Found in Thorax. J. S. Pritchard, Battle Creek, Mich.—p. 259.
*Salt in Vascular Hypertension. J. P. O'Hare and W. G. Walker, Boston.—p. 283.
Specific Tests in Diagnosis of Allergy. W. W. Duke, Kansas City, Mo.—p. 298.

Water Intoxication.—The toxicity of water was investigated by Rowntree. In man and animals water ingested in excess of the ability of the organism to excrete it leads to water intoxication. Water intoxication is manifested by restlessness, asthenia, polyuria, frequency of urination, diarrhea, salivation, nausea, retching, vomiting, muscle tremor and twitching, ataxia, tonic and clonic convulsions, frothing at the mouth, helplessness, stupor and coma. The convulsions are general in character, of extreme violence and, in the main, resemble those of strychnin poisoning. They may recur at intervals of a few minutes. Water intoxication terminates in death unless the excessive intake is discontinued. Water intoxication may be acute, ending in death in from four to twelve hours, or subacute, lasting for some days. Subacute intoxication results from smaller amounts of water continued over a longer period of time. Water intoxication is accompanied by, and is probably due, in part at least, to increased intracerebral pressure; this, in turn, is probably a manifestation of disturbance in the salt water equilibrium of the central nervous system. Water intoxication can be prevented, alleviated or cured by the timely intravenous administration of hypertonic sodium chlorid solution.

Benzoate Test for Renal Function.—Early results with the sodium benzoate test gave evidence that it was sensitive and would probably indicate early disturbances of renal function. Kingsbury's findings confirm this view. As originally described, the test determines the three-hour output of hippuric acid after the ingestion of 2.4 gm. of sodium benzoate. Fruits which contain benzoic acid or substances which may be converted into it in the body must be omitted from the diet before and during the period of the test. Determinations were made by Kingsbury on forty-four normal subjects. The average two-hour excretion of hippuric acid was 82 per cent. of the ingested dose of sodium benzoate and the third-hour excretion was 16 per cent. The test was also applied in thirty-nine hospital cases. The value of this test lies in showing the degree of impairment of renal function early in glomerulonephritis, nephrosis, pyelonephritis and arteriosclerosis of the kidney. It is also useful in determining the degree of improvement in function following the acute renal injury in toxemia of pregnancy. There is a fairly close agreement in this respect with the water excretion test of Volhard, the urea concentration test of MacLean, and the constant of Austin, Stillman and Van Slyke, in the few cases in which the comparison was possible. The benzoate test indicates renal insufficiency earlier than does a test of the urea content of the blood.

New Method of Determining Blood Clotting Time.—The method devised by Petersen and Mills depends on the fact that blood ceases to flow back and forth in a capillary tube at the first sign of clotting. Capillary tubes of from 0.6 to 0.8 mm. inside diameter are drawn from clean glass tubing and cut into about 1¼ inch lengths. The blood is obtained from a stab wound of the finger or ear, the first drop being wiped off. The tube is touched to the second drop, and the blood is allowed to flow in by capillarity, leaving about one-fourth inch unfilled. This is counted from the appearance of the second drop over the wound. After filling, and in order to secure a constant and definite temperature, the tube is placed in one of the creases of the palm and completely covered by closing the hand. This gives a uniform temperature, somewhat below that of the body (about 35 C.), and obviates the necessity of a water bath or chamber of any sort. By simply opening the hand slightly for observation when inverting the tube, one may note the end point without changing the temperature or disturbing the tube. The tube should be gently inverted every thirty seconds, and observation made of the time when the column ceases to move, on being so inverted. Jarring and shaking tend to prolong the clotting time and should, therefore, be avoided.

Uric Acid in Blood in Eczema.—In a chemical study of the blood of more than 200 patients suffering from cutaneous diseases, great variations in the uric acid content were found by Schamberg and Brown. About one half of the patients had eczema, and in these an increase in uric acid beyond the maximal normal limit (3.5 mg.) was observed in 50 per cent. of the cases. In some cases of pruritus, both general and local, there were likewise high uric acid figures. Classifying the eczema patients in age decades, it is seen that there is a rising uric acid curve from the fortieth to the seventieth year. This is not evident in the noneczematous subjects. The average uric acid content of the blood in the male subjects was about 25 per cent. higher than among the female patients. The blood of young patients with eczema did not, as a rule, contain large amounts of uric acid, but there were some notable exceptions. Patients with psoriasis, acne, urticaria and certain other cutaneous diseases have a lower average uric acid blood content than those suffering from eczema. The authors believe the hyperuricemia to be related etiologically to eczema and to pruritus in a considerable percentage of the cases studied. Appropriate dietary measures have made many of their patients much more rapidly amenable to treatment than patients previously treated without this therapeutic measure.

Treating Diabetes by Diet Adjustment and Ketogenic-Antiketogenic Balance.—Calculations made by McCann and his associates of the ketogenic-antiketogenic balance from the foodstuffs actually metabolized in diabetic subjects show that a maximum of one molecule of antiketogenic substance is required for the complete oxidation of one molecule of ketogenic substance. Frequently less than one molecule of antiketogens will suffice. The records of five patients serve to illustrate both successes and failures of a method of diet adjustment, the aim of which was to afford each patient (*a*) at least enough calories to cover the maintenance requirement for rest in bed (basal metabolism plus 10 per cent.); (*b*) to reduce the level of protein metabolism by means of a low protein intake; (*c*) to give the foodstuffs in such proportions that at least one molecule of antiketogenic substance will be available for every molecule of ketogen formed. The substitution of glycerol for carbohydrate is a successful means of combating ketosis in certain cases. The improvement noted in patients to whose diet calcium and phosphorus were added (as $Ca_3[PO_4]_2$, calcium hexose phosphate, and

calcium glycerophosphate) is not attributed to the effect of this addition.

Low Salt Diet in Vascular Hypertension.—The experience detailed by O'Hare and Walker with the extremely low salt intake advocated for the treatment of hypertension do not indicate any special advantage over the older less rigid restriction. This very low salt diet is, furthermore, difficult to carry out at home, is monotonous and expensive. The authors also suggest that salt plays little part in vascular hypertension.

Archives of Occupational Therapy, Baltimore

2: 253-334 (Aug.) 1923

Psychanalysis and Vocational Guidance. W. A. White, Washington, D. C.—p. 253.
Patients' Reactions, Guide to Further Treatment. L. J. Haas, New York.—p. 277.
Activities for Promotion of Occupational Therapy in St. Louis. R. S. Michael, St. Louis.—p. 287.
Occupational Therapy in Michigan. C. B. Ball, Detroit.—p. 293.

Atlantic Medical Journal, Harrisburg, Pa.

26: 723-796 (Aug.) 1923

Diagnosis of Brain Tumor. W. G. Spiller, Philadelphia.—p. 723.
Diagnosis and Treatment of Brain Tumors. W. E. Dandy, Baltimore.—p. 726.
Cerebrospinal Syphilis. H. Pleasants, Jr., West Chester.—p. 728.
*Peritonitis Following Operation for Chronic Cholecystitis of Influenzal Origin. B. Z. Cashman, Pittsburg.—p. 732.
Essential Nature of Epilepsy. C. C. Wholey, Pittsburgh.—p. 735.
*Case of Raynaud's Disease in Child, Aged 5. A. Hand and J. J. Reilly, Philadelphia.—p. 739.
*Three Years' Experience with Thick Cereal Feedings in Infancy in Malnutrition and Allied Conditions. H. R. Mixsell, New York.—p. 744.
Some Principles Involved in Bronchoscopic Removal of Foreign Bodies. Illustrative Cases. F. J. Bishop, Scranton.—p. 750.
Personality Study of a "Witch Doctor" Now Convict. N. S. Yawger, Philadelphia.—p. 752.

Peritonitis Following Cholecystectomy.—Two cases of fatal postoperative peritonitis following cholecystectomy for chronic cholecystitis are recorded by Cashman. The clinical picture was that of a streptococcus peritonitis. However, bacteriologic proof could not be obtained.

Raynaud's Disease in Children.—Three cases occurring in one family are reported by Hand and Reilly, the patients being aged 5, 2½ and 8½ years, respectively. Hereditary syphilis was suggested in these cases as both parents had positive Wassermann reactions; with the exception of snuffles in one case during infancy, none of the three children presented signs of syphilis and the diagnosis was therefore made by the Wassermann test.

Thick Cereal Feedings in Malnutrition.—Mixsell reports further on the use of his skimmed milk and farina mixture in cases of malnutrition (marasmus); pylorospasm (mild and severe); pyloric stenosis; breast fed colic cases; persistent vomiting (neuropathic); idiosyncrasy for breast milk, and for cow's milk; liquid food intolerance; acute gastritis with vomiting; eczema and allied skin conditions; acute ileocolitis with vomiting, prematurity with defective assimilation and acute infectious fevers.

Canadian Medical Association Journal, Montreal

13: 549-626 (Aug.) 1923

Septic Factor in Three Great Plagues. W. J. Mayo.—p. 549.
*Recent Pharmacologic Studies in Intestinal Peristalsis. V. E. Henderson.—p. 560.
Observations with Insulin on Department of Soldiers, Civil Reestablishment Diabetics. J. A. Gilchrist, C. H. Best and F. G. Banting.—p. 565.
Recent Advances in Treatment of Myocarditis and Nephritis. K. MacKenzie.—p. 573.
*Some Eye Symptoms in Lethargic Encephalitis. J. W. Stirling.—p. 577.
Acute Osteo Myelitis. A. M. Forbes.—p. 579.
Early Diagnosis and Treatment of Neurosyphilis. R. W. Mann.—p. 582.
Citrate Method of Blood Transfusion Devised to Minimize Post Transfusion Reactions. F. W. Luney.—p. 587.
Protein Hypersensitiveness and Its Relation to Disease. A. T. Henderson.—p. 591.
Cyanosis. M. E. Abbott.—p. 601.
Blood Sedimentation Test. T. R. Waugh.—p. 504.

Intestinal Peristalsis.—In connection with his experiments Henderson observed that when intestinal tonus was low after distention and the intestine contained a quantity of fluid sufficient to fill it, the peristaltic waves which occurred were very shallow and had no effect in moving the contained fluid. Respiratory movements, however, were effective, and the fluid gradually passed upward, entered the stomach, and was vomited. This, Henderson feels, is a more probable explanation of the fecal vomiting that occurs in cases of intestinal stasis than is reversed peristalsis. A true reversed peristalsis has, he believes, never been observed.

Eye Symptoms in Lethargic Encephalitis.—In one case recorded by Stirling the eye symptoms were monocular. Vertical paralysis occurred three weeks after the first paralysis of the internal rectus. There was no failure of accommodation, nor papilledema. In the second case there was but little to note except monocular limitation of the symptoms and the lack of fundal change. The third case was interesting from the fact that it was one of paralysis of divergence, which has been but rarely reported. In none of these cases was Stirling sure of defective convergence contraction of the pupil, which Holden asserts is characteristic of the sluggish pupil of encephalitis, but in the third case there was failing accommodation without dilatation of the pupil—this again suggesting the nuclear seat of the lesion.

Colorado Medicine, Denver

20: 203-228 (Aug.) 1923

Diagnosis of Surgical Kidney Lesions. G. M. Myers, Pueblo.—p. 210.
Adventures in Neuropsychiatry. C. S. Bluemel, Denver.—p. 215.
Recent Diphtheria Outbreak in Boulder. S. Burrage and H. Anthony, Boulder.—p. 219.
*Sarcoma of Bladder. C. J. Lowen, Denver.—p. 221.
Endocrinology of Ear, Nose and Throat. C. E. Harner, Denver.—p. 223.

Sarcoma of Bladder.—Lowen relates the case of a woman, aged 20, whose physician, in the fourth month of her gestation, discovered a small tumor about the size of a walnut in the region of the neck of the bladder. He advised the patient to have it removed after labor. In due time normal labor took place. The fifth day of the puerperium the patient was unable to void urine. After various measures catheterization was resorted to. After about ten days of this it was felt that something further must be done. Examination disclosed a tumor mass about the size and shape of a lemon, one end of which arose about a half inch above the meatus and extended upward along the anterior vaginal wall to and into the base of the bladder. The vaginal mucous membrane presented a glazed, bluish appearance. The tumor was slightly movable, smooth and boggy to the touch. A diagnosis of probable malignancy was made. Under ether anesthesia, a soft, friable tumor was enucleated, which involved the entire urethra, bladder neck and about one half the trigone, and consisted of layers of tissue arranged very much like the layers of an onion. A diagnosis of sarcoma of the bladder was made. The patient stood the operation nicely. At the end of ten days she was permitted to return home. Two weeks later the patient returned in a deplorable condition. She was weak, cachectic and showed purple spots. She was immediately put to bed; she started to bleed from the nose and vagina, and died twenty-four hours later from exhaustion. Lowen states that this case emphatically demonstrates the frequent fallacy of designating tumors "benign"; also how the trauma of labor changed the entire clinical course. Again, it is the only case of sarcoma of the bladder complicated by labor that has been reported.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

21: 377-466 (July) 1923

*Free Sugar Content of Liver and Its Relation to Glycogen Synthesis and Glycogenolysis. C. F. Cori, G. T. Cori and G. W. Pulcher, Buffalo.—p. 377.
*Pharmacology and Therapeutics of Oil of Chenopodium and Investigations on Anthelmintic Value of Its Components. D. M. Molloy, Managua, Nicaragua.—p. 391.
Influence of Arterial Blood Supply to Liver on Hemoglobin Concentration in Certain Acute Conditions. P. D. Lamson, A. F. Abt, C. A. Oosthuisen and S. M. Rosenthal, Baltimore.—p. 401.
*Biophysical Studies of Effects of Various Drugs on Temperature of Brain and Liver. I. Strychnin, II. Morphin, III. Bromides, IV. Curare, V. Atropin, VI. Caffein, VII. Alcohol. G. W. Crile, A. F. Rowland and S. W. Wallace, Cleveland.—p. 429.
*Pharmacologic and Clinical Examination of Benzyl Mandelate. D. I. Macht, Baltimore.—p. 443.

Free Sugar Content of Liver.—Coris and Pulcher found that during the ingestion of glucose by rabbits and guinea-pigs glycogen synthesis takes place from a free sugar level above that of a starving animal. Insulin causes glycogen synthesis during the ingestion of glucose even though the blood sugar and free liver sugar is below that of a starved animal. Epinephrin immediately stimulates glycogenolysis, setting free the maximal amount of sugar in the liver in from thirty to sixty minutes. The sugar set free in the liver is only slowly put into the blood stream. The highest blood sugar is at a point at which the free liver sugar has already begun to decrease.

Potency of Oil of Chenopodium.—Molloy's experience has shown conclusively that the product marketed as "oil of chenopodium" varies greatly in anthelmintic potency. It is entirely feasible to standardize the drug by fractional distillation. This avoids the uncertainty on beginning the use of a new lot which has not been tested practically to determine its anthelmintic quotient.

Effects of Drugs on Temperature of Brain and Liver.—It is assumed that the effect of the injection of epinephrin on the temperature of the brain in normal animals can be used as a unit of measurement whereby to estimate the effect of an agent on the oxidative power of the brain. From the experiments reported by Crile, Rowland and Wallace it would appear that the alteration in the temperature of the brain following the injection of epinephrin is not notably affected by the effect of the agent on the blood supply of the brain. The following observations are of especial significance: (*a*) When epinephrin is injected in the presence of morphin, the temperature response of the brain is diminished in direct relation to the depth of narcosis. (*b*) The injection of epinephrin in the presence of strychnin produces not only a characteristic rise in the temperature of the brain, but also a marked decrease in the temperature of the liver. (*c*) Alcohol of itself alone produces a fall in temperature corresponding to that observed in rabbits in shock; while the injection of epinephrin in these animals produces a characteristic rise in temperature. This rise is followed by a fall which exceeds that observed in normal rabbits.

Pharmacology of Benzyl Mandelate.—Benzyl mandelate is a new ester of mandelic acid. A pharmacologic and toxicologic study of the new compound, benzyl mandelate, was made by Macht. It was found that this compound is of comparatively low toxicity, and is pharmacologically effective. The most important pharmacologic action of the drug is on smooth muscle. Benzyl mandelate produces a marked relaxation of all such preparations, especially after they have been brought into a state of tonic or marked contraction. In view of the antispasmodic pharmacologic properties of both the alkyl and acid components of the molecule, a greater antispasmodic effect is produced by the compound than by other benzyl esters. In cases of hypertension or high blood pressure, the results were gratifying. The drug in each case was administered by mouth, either in powdered form or in capsules, and the blood pressure was measured within one-half hour to one hour after the administration of the drug. In every case the administration of even small doses of benzyl mandelate (1 to 2 grains) was followed by a definite systolic and diastolic fall in blood pressure. In no case were untoward symptoms observed by the physician or complained of by the subject. On the other hand, in a number of cases the patients stated that their symptoms were distinctly relieved. Administration of small quantities (2 to 5 grains) of mandelic acid, in solution, by mouth, were also followed by a distinct fall in blood pressure within thirty minutes. The effects of mandelic acid alone, however, were not as potent as those of the benzyl ester.

Journal of Radiology, Omaha

4: 261-294 (Aug.) 1923

Effect of Roentgen Ray on Histology of Nodes in Some Cases of Lymphadenopathy, Found by Adenectomy During Treatment. H. Fox and D. L. Farley, Philadelphia.—p. 261.
Value of Oblique Films in Study of Thorax. J. S. Pritchard, Battle Creek, Mich.—p. 268.
Roentgen-Ray Analysis of Right Diaphragm. E. H. Skinner, Kansas City, Mo.—p. 270.
Gallbladder Disease with Special Reference to Fluoroscopic Findings. R. A. Arens, Chicago.—p. 274.
Toxic Thyroid with Pathologic Findings After Radium Treatment. R. E. Loucks, Detroit.—p. 276.
Pulmonary Abscess Roentgenographically Considered. W. H. Stewart, New York City.—p. 277.
Sarcoma of Back; Report of Three Cases. B. H. Wagnon, Atlanta, Ga.—p. 278.

Journal of Urology, Baltimore

10: 99-183 (Aug.) 1923

History of Development of Urology as Specialty. T. D. Moore, Rochester, Minn.—p. 99.
*Diagnosis and Surgical Treatment of Malignant Tumors of Kidney. W. E. Stevens, San Francisco.—p. 121.
*Blood Pressure in Cases of Urinary Obstruction. V. J. O'Conor, Chicago.—p. 135.
*Simple Treatment of Certain Lesions of Intravesical Ureter in Female. Ed. J. Harnagel, Des Moines, Iowa.—p. 141.
Epispadias in Women. Report of Case. W. E. Lower, Cleveland.—p. 149.
*Report of Cases of Malignant Growths of Bladder Treated by Resection and Radium. H. G. Bugbee, New York City.—p. 159.
*Food Allergy as Cause of Irritable Bladder. W. W. Duke, Kansas City, Mo.—p. 173.
Case of Schistosomum Hematobium. J. Pedersen, New York.—p. 175.
Case of True Hourglass Bladder. H. L. Kretschmer and H. L. Morris, Chicago.—p. 181.

Diagnosis of Malignant Tumors of Kidney.—The differential diagnosis of the various histologic types of malignant tumors of the kidney, Stevens says, is at times impossible, but a careful study of the symptoms, together with the cystoscopic and radiographic findings, will make this feasible in many instances. The points of diagnostic significance are enumerated in detail.

Blood Pressure in Urinary Obstruction.—The results of the study of seventy-four patients with urinary retention due to obstruction at the vesical neck are recorded by O'Conor. The majority of these patients who had suffered from long standing urinary retention, and who originally presented themselves with hypertension, have continued thus far to be relieved of their abnormally high blood pressure, except in a few instances in which demonstrable cardiac disease existed. Obstruction in the course of the urinary tract must be considered, in many instances, as a cause per se of high systemic blood pressure. This may be equally true even though the residual urine is small in amount. Complete drainage of the bladder in patients suffering from urinary retention is attended by a marked fall in systolic blood pressure during the first forty-eight hour. During this period the renal function is diminished. If, however, the retained urine is gradually evacuated, the decrease in pulse pressure will be less marked and the renal function only slightly diminished. Before instituting permanent drainage all patients in a "pre-uremic," or "dehydrated" condition should be amply supplied with fluid. This can be quickly and safely accomplished by the intravenous injection of glucose solution. If satisfactory drainage of the bladder is continued, the blood pressure is gradually maintained at a definite, nonfluctuating level. During this period the adequacy of the renal function and the general condition of the patient indicate that he is in the best possible condition for operation. Patients prepared for operation by waiting until this fixed blood pressure level has been established have shown a very insignificant postoperative decrease in blood pressure, especially when glucose solution is given intravenously both before and after operation.

Treatment of Intravesical Ureter Lesions in Female.—Only within a short radius of the internal meatus is the bladder itself fixed or comparatively immovable—other parts may readily be drawn with Young's rongeur, in the female, through the urethra quite to the external meatus. This mobility Harnagle turned to advantage in the two cases reported; one of left ureterovesical cyst, and one of calculus in the right intravesical ureter.

Treatment of Malignant Growths of Bladder.—Nineteen cases are analyzed by Bugbee. In cases of extensive carcinoma of the bladder, when metastasis has taken place, he says, effort should be directed toward making the patient as comfortable as possible. Often this may best be attained by simple bladder drainage. In extensive carcinoma of the bladder without metastasis, in lieu of total or subtotal cystectomy, it is possible in some cases to destroy the growth by repeated insertions of radium needles—if it is borne in mind that the objective is to destroy the growth, not the patient, by

not too massive a dose, but by repeated insertions at sufficient intervals, giving free bladder drainage to allow for sloughing and infection, every effort being exerted during the process to increase body elimination. A circumscribed carcinoma should be removed by resection, if possible. Recurrences after operation are less resistant than the primary growth, sometimes yielding even to fulguration. The insertion of radium needles into the bladder wall about the line of resection causes the formation of sloughs which have in some cases remained for four months. Such a procedure is valuable in minimizing the chances of local recurrence by destroying stray cancer cells and involves no risk or discomfort. Malignant papilloma should be removed by resection, the line of resection being fortified by the insertion of radium needles.

Kentucky Medical Journal, Bowling Green

21: 383-438 (Aug.) 1923

Congenital Syphilis. C. B. Wilmott, Louisville.—p. 389.
Removal of Knife from Behind Orbit After Five Months. Case Report. A. O. Pfingst, Louisville.—p. 395.
Endocrinology in Relation to Mental Processes. H. N. Leavell, Louisville.—p. 396.
Foreign Body (Metal) in Eye. J. J. Wynn, Louisville.—p. 401.
Hepatic Abscess. Case Report. L. W. Frank, Louisville.—p. 403.
Abdominal Aortic Aneurysm. Six Cases in Twenty-Eight Aneurysms Found Among 1,062 Necropsies. E. R. Gernert, Louisville.—p. 405.
Bilateral Congenital Absence of Radius. L. P. Separs, Louisville.—p. 407.
Corneal Ulcer in Diabetic. Case Report. L. K. Baldauf, Louisville.—p. 408.
Hyperthyroidism. B. W. Bayless, Louisville.—p. 409.
Rationale of Roentgen-Ray Signs in Duodenal Ulcer. C. D. Enfield, Louisville.—p. 415.
Gonorrheal Urethritis and Its Complications in Male. T. M. Dorsey, Louisville.—p. 419.
Influenza. L. E. Botts, Glasgow.—p. 425.
Medical Treatment of Gastro-Enteritis in Infancy and Childhood. W. R. Burr, Auburn.—p. 428.
Medical Fads and Fallacies. Ancient Versus Modern. S. Mullins, Wingo.—p. 431.
Invagination of Caput Coli of Many Years Duration. Case Report. J. Garland Sherrill, Louisville.—p. 436.

New York Medical Journal and Medical Record New York

118: 133-192 (Aug. 2) 1923

Dentistry and Medicine. L. F. Barker, Baltimore.—p. 133.
Relationship Between Physician and Dentist. C. N. Johnson, Chicago.—p. 135.
Dental Diagnosis. W. G. Thompson, New York.—p. 138.
Interrelationship of Physician and Dentist. L. M. S. Miner, Boston.—p. 140.
Cause and effect of Malocclusion of Teeth. L. M. Waugh, New York.—p. 142.
Health, Sickness and Death as Related to Dental Infections. G. Osgood, Rockland, Mass.—p. 145.
Present Status of Pulp and Root Canal Problem. M. L. Rhein, New York.—p. 148.
Vincent's Infection of Mouth. I. Hirschfield, New York.—p. 150.
Oral Infection by Vincent's Organisms. P. R. Stillman and J. O. McCall, New York.—p. 155.
Evolutionary Development of Reconstructive Dentistry. M. Diamond, New York.—p. 156.
Existence of Abnormal Physical Conditions as shown by Teeth. W. A. Cotton, New York.—p. 159.
Extensive Involvement of Ocular Muscles Due to Focal Infection of Teeth. L. W. Deichler, Philadelphia.—p. 163.
Prevalence of Oral Disease and Its Insidious Effect upon General Health. B. B. Machat, Brooklyn.—p. 165.
Oral Sepsis in Relation to Eye, Ear, Nose and Throat Disease. L. R. Cahn, New York.—p. 168.
New Method for Directing the Central Ray at Predetermined Angulation with Aid of Dental Methograph. J. F. Freund, New York.—p. 170.

118: 193-256 (Aug. 15) 1923

Rickets and Tetany. H. Brooker Mills, Philadelphia.—p. 193.
Instability of Adolescence. Its Treatment from Endocrinologic Viewpoint. E. B. McCready, Pittsburgh.—p. 199.
Foreign Proteins in Prophylaxis and Therapeutics. F. E. Stewart, Philadelphia.—p. 202.
General Theory of Neuroses. A. Polon, New York.—p. 207.
Influence of Glucose on Phagocytosis in Vitro. G. Rubin and M. L. Arkin, Chicago.—p. 212.
Experiences with Insulin in Treatment of Severe Cases of Diabetic Acidosis with Impending Coma. J. S. Diamond, New York.—p. 213.
Renal Glucose Threshold and Its Bearings on Insulin Treatment of Diabetes. G. W. McCaskey, Fort Wayne, Ind.
Use of Insulin in Infantile Inanition. R. L. Pitfield, Germantown, Pa.—p. 217.
*Familial Concurrence of Diabetes Mellitus and Premature Canities. H. W. Traub, Chicago.—p. 218.
Prescribing Diabetic Diets. E. E. Cornwall, Brooklyn.—p. 221.
Pancreas and Interrelation of Endocrine and Sympathetic System in Regard to Diabetes. C. Legiardi-Laura, New York.—p. 225.
Rôle of Spleen in Certain Anemic Conditions. E. S. Cross, Baltimore.—p. 227.
Dark Age in Medicine. Projected Retrospect. E. H. Williams and E. B. Hoag, Los Angeles.—p. 231.

Familial Diabetes with Canities.—The incidence of unquestioned cases of diabetes and of well marked premature grayness of the hair in four generations of descendants of one common ancestor is presented by Traub.

New York State Journal of Medicine, New York

23: 325-358 (Aug.) 1923.

Recent Progress in Communicable Diseases of Childhood. C. Herrman, New York.—p. 325.
Prenatal Care and Maternity Welfare. I. From Standpoint of State. F. L. McKay, Albany.—p. 326.
Id. II. From Standpoint of Regional Consultant. J. K. Quigley, Rochester.—p. 332.
Id. III. From Standpoint of Maternity Center without Hospital Connection. G. W. Kosmak, New York.—p. 335.
Prenatal Care in Clinics Affiliated with Hospital. J. O. Polak, Brooklyn.—p. 338.
Indications and Limitations of Irradiation in Obstetrics and Gynecology. H. C. Williamson, New York.—p. 341.
Report of Committee on Computation of Ocular Disability Resulting from Industrial Injury or Disease. A. C. Snell, Rochester; A. J. Bedell, Albany, and W. B. Weidler, New York.—p. 343.

Northwest Medicine, Seattle

22: 263-300 (Aug.) 1923

History of Discovery of Insulin. J. B. Collip, Edmonton, Can.—p. 267.
Modern Advances in Treatment of Diabetes Mellitus. C. H. Hofrichter, Seattle.—p. 273.
Insulin Therapy in Progressive Downward Type of Diabetes. J. S. Saurman, Salem, Ore.—p. 277.
Influence of Insulin on Teaching of Diabetic Patient. B. Holcomb, Portland, Ore.—p. 281.
Early Diagnosis of Cancer of Rectum. A. Crookall, Seattle, Wash.—p. 263.
Value of Perimetric Studies in Visual Defects. A. B. Dykman, Portland, Ore.—p. 287.
Papyraceous Fetus, Report of Case. P. J. Keizer, R. C. Keizer and I. B. Bartle, North Bend, Ore.—p. 291.

Rhode Island Medical Journal, Providence

167: 115-130 (Aug.) 1923

Diet in Treatment of Diarrhea in Infancy. Wm. P. Buffum, Jr., Providence.—p. 115.
Problems of Present Day Unrest. E. B. Delabarre.—p. 118.

South Carolina Medical Association Journal, Greenville

19: 555-582 (Aug.) 1923

Common Eye Conditions Met in General Practice. P. V. Mikell, Columbia.—p. 556.
Treatment of Toxemia of Pregnancy with Convulsions. T. Pennel, Belton.—p. 558.
Diagnosis and Treatment of Nasal Sinus Disease with Case Reports. W. McWhorter, Anderson.—p. 560.
Notes on Some Tropical Diseases. B. C. Crowell, Charleston.—p. 564.
Uterine Suspension. Cases with Follow Up Results. J. R. Boling, Columbia.—p. 567.
Brodie's Abscess. S. O. Black, Spartanburg.—p. 569.
Acriflavine in Treatment of 200 Cases of Gonorrhea. A. J. and M. E. Greenberger, New York.—p. 571.

Virginia Medical Monthly, Richmond

50: 281-350 (Aug.) 1923

Treatment of Lobar Pneumonia. R. L. Cecil, New York.—p. 281.
Some Sources of Error in Interpretation of Phthalein Test, with Special Reference to Effect of Exercise. W. H. Higgins, Richmond.—p. 285.
Some Unsolved Problems in Neurologic Surgery. E. Sachs, St. Louis.—p. 289.
Growing Importance of Mapping Fields of Vision. W. E. Driver, Norfolk.—p. 293.
Maternal Mortality in Richmond. C. C. Hudson and M. P. Rucker, Richmond.—p. 300.
Chronic Ulcerative Colitis and Its Treatment. W. Hughson, Baltimore.—p. 304.
Symptoms and History in Diagnosis of Pulmonary Tuberculosis. D. B. Cole, Richmond.—p. 310.
Diet in Tuberculosis. H. R. Edward, Richmond.—p. 312.
Nervous, Mental and Endocrine Manifestations in Menopause. H. R. Masters, Richmond.—p. 317.
Nutrition and Life. L. T. Royster, Norfolk.—p. 320.
Acute Osteomyelitis: Differential Diagnosis and Treatment. L. A. McAlpine, Portsmouth.—p. 325.
Some Essentials in Fracture Work. G. H. Reese, Petersburg.—p. 328.
Roentgen Ray in Treatment of Cancer. D. D. Talley, Jr., Richmond.—p. 330.
"Cattle-Truck" Symptoms of Arterial Occlusion in Eye. C. Edmond, Clifton Forge.—p. 333.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Brain, London

46: 147-253 (July) 1923

*Hepato-Lenticular Degeneration. Report of Case. G. Hadfield.—p. 147.
*Rhythmic Convergence Spasm of Eyes in Case of Tumor of Pineal Gland. S. J. R. De Monchy.—p. 179.
Influence of Cerebrum and Cerebellum on Extensor Rigidity. W. P. Warner and J. M. D. Olmsted.—p. 189.
*Sensory Activities of Skin for Touch and Temperature. D. Waterston. —p. 200.
"Law of Fluctuation" or of Alternating Periods of Activity and Rest in Living Tissues. P. T. Herring.—p. 209.
Hysterical Pain. R. G. Gordon and H. H. Carleton.—p. 221.

Hepatolenticular Degeneration.—A case is described by Hadfield having all the essential characters of hepatolenticular degeneration. It illustrates conclusively, both clinically and pathologically, the existence of transition types between Wilson's disease and pseudosclerosis. Focal lesions in the cerebral cortex, characterized by a prolific vascular new formation, are described. A selective necrobiosis of the large motor cells of the putamina and caudate nuclei was found histologically. It appears probable that: (*a*) An early stage in the destruction of nervous tissue in these diseases is the development of a specific type of vascular new formation. (*b*) The changes described in the lenticular nuclei in the case reported represent a late stage in their degeneration.

Rhythmic Convergence Spasm of Eyes in Pineal Gland Tumor.—The disturbances of internal secretion in De Monchy's case were the same as those found with dystrophia adiposogenitalis. The tumor consisted of two parts connected by means of connective tissue, one part lying in the situation of the epiphysis, the other part between the folds of the dura mater where the flax cerebri and the tentorium cerebelli meet.

Sensory Activities of Skin.—The principal results which have been reached by Waterston include the following: (1) There is structural and experimental evidence to show that the epithelium of the skin and of certain mucous membranes is the receptor organ for tactile sensation. It is not merely a protective covering, but the receptor organ for a special form of sensation, namely, touch. (2) at single examinations hot and cold spots show a punctate arrangement; the number of such spots in an area of given size, however, differs widely in different persons. (3) On repeated examination of the same area, the number of the hot and cold spots is greatly increased, new spots appearang on successive examinations, while many of those formerly found no longer respond. These observations harmonize with the results obtained by practically all who have investigated this subject. In addition, Waterston found that under certain conditions, such as that of mild erythema, the sensation of heat can be obtained from practically all points of the affected surface at a single examination. It follows from this that all parts of the surface are potentially sensitive to heat, and that there is no structural punctate arrangement of special receptors and special nerve fibers for thermal sensation. The punctate distribution of sensitive spots found at a single examination is explained by the view that in the skin there is a constant coming and going of activity of the different parts. Other examples of "fluctuation" are afforded by the skin capillaries in normal and in certain abnormal conditions, and the same principle may form the explanation of the variations found in areas of hyperesthesia and anesthesia. To this coming and going of activity Waterston applied the term "fluctuation." The erythema produced by the mustard leaf acts on the heat-receptive areas in excites all of them to receptivity.
such a way as to abolish temporarily this fluctuation and

Bristol Medico-Chirurgical Journal

60: 119-173 (July) 1923

Relation Between Chemistry and Medicine. F. Francis.—p. 119.
*Injuries to Head Illustrating Functions of Cortex. R. G. Gordon.—p. 139.
*Hoarseness; Importance of Early Laryngoscopy. E. Watson-Williams. —p. 153.

Injuries to Head Illustrating Functions of Cortex.—The effect of injury of the superficial cortex in the occipital lobe, the sensory area, the motor area and the frontal lobes is illustrated by Gordon by means of case reports. For instance, a man suffered a severe blow on the back of the head. The injury, which was probably a subdural hemorrhage, had involved the whole of the area of the visual cortex on both sides, with the result that he was completely and hopelessly blind; but as the midbrain centers for muscular movements were uninjured there was no ophthalmoplegia. This illustrates the function of the cortex as a receiving station for sensory impressions acting at a distance. A man was injured by a gunshot wound of the head on one side only with resultant homonymous hemianopia. This illustrates the principle that the cortex has to do with physiologic function rather than anatomic structure. Another man sustained a large gunshot wound on the lateral aspect of the occipital lobe, which caused injury to a considerable area of the cortex, though it did not involve the actual visual area. He retained considerable intelligence, but visual imagery was badly impaired. This illustrates the function of the cortex in revival of images. An epileptic sustained a severe injury of the right temple. At times the ordinary attacks of grand mal and petit mal were replaced by what are called visual equivalents. In these attacks there appeared before his eyes lights or sometimes figures which started in the center of the field of vision and passed over to the right margin of the field. While these were going on he had a right homonymous hemianopia, which passed off with the end of the attack. Here there was suppression of the proper highest function of the visual cortex at the left occipital pole with substitution or liberation of lower and less coordinated function. This corresponds exactly with what happens in lesions of the motor cortex which cause convulsions. A wound in the parietal bone over the postcentral gyrus, where the sensory area of the cortex is situated, caused partial astereogenosis, and failure to distinguish between the different textures of materials, such as silk and cotton. He could appreciate pain, extremes of heat and cold and touch, but he could not localize where the stimulus was administered with any degree of accuracy, nor could he descriminate the exact nature of the stimulus; above all he had no idea of the position of his hand or fingers.

Cause of Hoarseness Should Be Determined Early.—Hoarseness which lasts beyond quite a few days, Watson-Williams asserts, demands examination of the larynx. Hoarseness alone, without pain or other symptom, may be the only portent of an early tuberculosis, laryngeal cancer, tabes dorsalis, aortic aneurysm or other affection, foreshadowing the urgent need of vigorous therapeutic measures. Illustrative cases are cited.

British Medical Journal, London

2: 269-310 (Aug. 18) 1923

Diseases of Stomach, with Special Reference to Modern Methods of Investigation. C. Bolton.—p. 269.
*Early Diagnosis of Cancer of Stomach by Means of Gastric Analysis. T. I. Bennett.—p. 275.
*Some Applications of Physiology to Medicine. II. Ventricular Fibrillation and Sudden Death. J. A. MacWilliam.—p. 278.
*Sore Throat Caused by Elongated Styloid Process. A. J. Wright.—p. 282.

Early Diagnosis of Cancer of Stomach.—Prolonged personal investigation has convinced Bennett that free hydrochloric acid is secreted by the stomach of the majority of patients suffering from gastric carcinoma, and that, even when a patient with gastric carcinoma has complete achlorhydria, the gastric analysis is rarely identical with that given by a patient with pernicious anemia, chronic gastritis, or any other form of "benign" achylia. If the patient be prepared suitably overnight, and if careful examination of the contents of the fasting stomach be made the following morning, evidence either of stagnation, or of hemorrhage with aberrant secretion, or of both, will be found in the vast majority of cases of gastric carcinoma, and these signs are not likely to be confused with those given by other diseases. Bennett is of the opinion that great harm has been done by endeavors to interpret results of gastric analysis on empirical or on purely chemical grounds. The detection of early cancer of the stomach, he asserts, becomes possible if steps are taken to make stagnation easily demonstrable; this can be done by giving some finely divided charcoal in milk over night—two teaspoonfuls in a

tumbler of milk is sufficient, but it is, perhaps, well to give a charcoal biscuit in addition. The next step is to evacuate the fasting stomach content with great care. In a total series of fifty-three cases in which the clinical diagnosis of gastric carcinoma was definitely made, charcoal was visible in the fasting content next morning in thirty; but other signs of stagnation—a foul odor, lactic acid, and a relatively high concentration of acids other than hydrochloric—were present in twenty out of the remaining twenty-three cases. Blood was present, either fresh or partially broken up, in thirty-five cases. Bennett asserts that he has not seen a case of malignant disease of the stomach which did not give a positive diagnostic picture on gastric analysis, and the only condition with which this can be confused is that of gastric syphilis. In syphilis of the stomach there may be tumor formation with pyloric obstruction which is indistinguishable from cancer by any means save histologic examination. The Wassermann reaction is positive in such cases, but, at present, there is no means of knowing whether this may not be a sign of old infection with concurrent malignant disease.

Ventricular Fibrillation and Sudden Death.—The various phases of the problem of sudden and unexpected death of cardiac origin are reviewed and discussed by MacWilliam. Rupture of the heart, he says, is very rare. Simple standstill of the ventricles in complete heart block must be a rare cause, assuming that such standstill may sometimes kill without fibrillation as the terminal event. It is open to grave doubt whether reflex vagal inhibition per se, that is, without the supervention of fibrillation, is responsible for many deaths. Blocking of the mitral orifice by a thrombus and embolism of the pulmonary artery are known to be of very rare occurrence. Thrombosis and embolism of the coronary arteries kill by fibrillation. The old idea of a heart that is working with fair efficiency abruptly "failing to contract" against excessive resistance may be set aside as untenable, in the absence of the sudden action of violent poisons, etc. There remains the conclusion that the great majority of absolutely sudden deaths are to be ascribed to ventricular fibrillation. In animal experimentation—on cats, which are remarkably liable to ventricular fibrillation—the use of certain drugs has been found by MacWilliam to have decidedly beneficial effects, both in the way of protection against the onset of persistent fibrillation (for example, against faradic currents one hundred times as strong as are usually effective) and, in combination with cardiac massage, as regards recovery from the actual attack. These methods are, at present, only applicable under experimental conditions. There is reason to believe that in man, as in animals, an undue susceptibility to fibrillation is sometimes temporary and depends on circumstances that may be more or less transitory, though, it is often persistent and due to abnormalities of the ventricular musculature.

Sore Throat Caused by Elongated Styloid.—Cases in which sensations of pain or discomfort in the pharynx are complained of without discoverable cause are frequent. It has long been recognized that the styloid process may project into the tonsil, and even form a projection in the lateral wall of the pharynx. The elongation is probably due to ossification extending down the stylohyoid ligament, but has been regarded as an anatomic curiosity rather than as of clinical importance. Wright has seen two cases in which this condition gave rise to symptoms which were entirely relieved by removal of a portion of the bony process. Eight other cases were collected from the literature.

2: 311-346 (Aug. 25) 1923

Medical Diathermy. E. P. Cumberbatch.—p. 311.
Treatment of Gonorrheal Affections by Diathermy Currents. C. A. Robinson.—p. 312.
Diathermy in High Blood Pressure and Other Conditions. F. H. Humphris.—p. 314.
*Acidosis and Alkalosis in Children. J. P. Cammidge.—p. 318.
*Cow's Milk in Infant Feeding. R. J. Blackham.—p. 322.
*Prognosis After Removal of Semilunar Cartilages. R. J. McN. Love.—p. 324.
Antiseptic Action of Styryl-pyridines and Styryl-quinolines. C. H. Browning, J. B. Cohen, S. Ellingworth and R. Gulbransen.—p. 326.

Acidosis and Alkalosis in Children.—It is generally assumed that the depletion of the alkali reserve which occurs in diabetic acidosis is entirely dependent on the formation of acid products of imperfect fat metabolism, but the whole blood analyses which Cammidge has made in a large number of cases suggest that this is not the only explanation, and that incompletely utilized protein derivatives are a contributory factor; also, that in some instances defects in the excretory functions of the kidneys, similar to those met with in interstitial nephritis, accentuate the acidosis. In many cases, too, analysis of the feces reveals an inorganic ash content considerably in excess of the normal, pointing to an abnormal excretion of bases through the intestinal wall, a condition which would serve to diminish the alkali reserve still further. It is not surprising, therefore, that acidosis of an advanced type, in which several of these factors are probably at work, is difficult to control, and especially in children, whose metabolism is less stable than in adults, as is shown by the fact that comparatively small changes in the diet of a diabetic child will often produce very striking results. Thus, Cammidge has seen the addition of a single egg, or a dose of cod liver oil, induce a ketonuria, which rapidly disappeared when the addition was discontinued. In Cammidge's opinion, it is probable that an increase in the alkali reserve is partially responsible for the symptoms met with in pyloric stenosis and infantile tetany, but accurate observations are apparently lacking. It is known that tetany can be induced in animals by injecting alkalies, and Cammidge refers to one case in which tetanic convulsions followed an attempt to treat a diabetic acidosis in an infant by intravenous injections of sodium bicarbonate. Analyses of the blood in the few cases of alkalosis Cammidge has met with in adults have invariably indicated the existence of some ductless gland deficiency, and treatment with appropriate gland preparations and calcium by the mouth has brought about improvement.

Milk Powder in Infant Feeding.—Blackham advocates the use of milk powder for mixed feeding, in which, perhaps, the best practice consists not in giving breast feeds and bottle feeds alternately, but at each feed giving first the breasts and then a bottle in which the amount of milk corresponds as nearly as possible to that in which the former was deficient. Blackham's experience has been chiefly in hot countries, where milk is more putrescible, more adulterated, and even more liable to contamination than in temperate climates.

Prognosis After Removal of Semilunar Cartilage.—Of the fifty cases reported by Love, the results of operation were: good, 35 cases; fair, 11 cases; poor, 4 cases. In one patient in this series who was apparently cured, the condition suddenly recurred after an interval of nine months of strenuous life. In only one of these cases was the external cartilage involved.

Calcutta Medical Journal

17: 241-288 (June) 1923

Ocular Complications of Malaria. S. K. Mukerjee.—p. 241.
Main Principles of Cardiologic Practice. S. C. Bose.—p. 254.
Medical Education and Research Work in Bengal. N. Sircar.—p. 260.
Some Interesting Kala-Azar Cases. D. Banerji.—p. 265.

Medical Journal of Australia, Sydney

2: 83-108 (July 28) 1923

Hyoscin and Morphin Narcosis in Management of Labor. F. A. H. Michod.—p. 83.
Simplified Method of Preparing Modified Romanowsky Blood Stain. D. L. Barlow.—p. 90.
Lethargic Encephalitis. C. A. Hogg.—p. 90.

South African Medical Record, Cape Town

21: 317-340 (July 28) 1923

Benign Tertian Malaria. D. McK. MacRae.—p. 318.
*Method of Blood Culture in Undulant (Malta) Fever and Other Diseases. L. J. J. Orpen.—p. 325.
Rupture of External Lateral Ligament of Ankle-Joint with Protrusion of External Malleolus Through Skin. H. R. S. Walford.—p. 325.
Uterine Displacements. O. J. Currie.—p. 326.
Recollections of Smallpox Epidemic of 1882. H. Meijer.—p. 330.
Short Sketch of History of Hospitals. C. C. Elliott.—p. 331.

New Method of Blood Culture in Malta Fever.—The method used by Orpen is described as follows: Ten c.c. of blood are taken into a centrifuge tube containing from 0.5 to 1 c.c. of 10 per cent. citrate. Sodium chlorid solution is added, and the whole is centrifuged at a good speed for from fifteen to twenty minutes, so that both red cells and organisms are

thrown down. The sodium chlorid addition and centrifuging are repeated twice. The deposit (consisting of about 4 c.c. of washed red cells and organisms) is then taken up in a pipet and 1 c.c. is added to each of four tubes of ordinary agar (10 c.c. melted and cooled to 45 C.). Plates are poured at once, and incubated at 37 C. With this method the organism can be picked off for identification in a few days.

Annales de Médecine, Paris

14: 1-88 (July) 1923

*Cardiophonography. L. Michaud and A. Fleisch.—p. 1.
*Eunuchoid Infantilism. M. Letulle and Wejsmann-Netter.—p. 19.
*The Oculocardiac Reflex with Trigeminal Disease. J. A. Barré and L. Crusem.—p. 31.
*Dissociated Jaundice. M. Labbé and E. Doumer.—p. 44.
*Leukocyte Count During Digestion. Claude et al.—p. 52.
*Factors That Modify Glycemia. H. Labbé and B. Théodoresco.—p. 67.
Duodenal-Pyloric Ulcer of Traumatic Origin. J. Chalier and R. Desjacques.—p. 78.

Recording the Sounds and Murmurs of the Heart.—Michaud and Fleisch describe the comparative findings in normal and diseased hearts examined with W. R. Hess' cardiophonograph. They regard it as valuable both for diagnosis and prognosis, and to estimate the effect of treatment.

Eunuchoid Infantilism with Partial Giant Growth.—The necropsy of the man, aged 69, confirmed the total absence of gonads. Death had occurred from rupture of the aorta. Inherited syphilis was probably the primary factor.

The Oculocardiac Reflex in Disease of the Trigeminal Nerve.—In the twenty cases described, the oculocardiac reflex was lost on the sound side as well as on the side with trigeminal neuralgia, or other affection of the trigeminal nerve, in more than 50 per cent. of the cases. This bilateral modification of the reflex from a unilateral lesion suggests a crossed central arrangement of the reflex arc. The research was done with a special apparatus for graduated compression of the eyeball. In seven of the cases there was some destructive lesion of the trigeminal nerve.

Dissociated Jaundice.—Labbé and Doumer discuss the mechanism responsible for the cholaluria in the course of protracted jaundice, and after test ingestion of 1.5 gm. of bile salts.

Variations in the Leukocyte Count.—Claude, Santenoise and Schiff state that several factors are involved in the modifications in the leukocyte count in the peripheral blood after meals. With a normal liver, there is leukopenia when the oculocardiac reflex is strongly positive. On the other hand, there is leukocytosis when this reflex is lost or inverted. With deficient liver function, there is early leukopenia in subjects with positive oculocardiac reflex, and tardy and prolonged leukopenia if this reflex is lost or inverted. The direction, the rapidity and the duration of the digestive change in the leukocyte count, the hemoclastic crisis, thus throw light on both the functional capacity of the liver at the time and also on the balance in the vegetative nervous system.

Factors Liable to Modify the Sugar Content of the Blood.—Labbé and Théodoresco remark that tests for glycemia are liable to be misleading unless the subject has been fasting for fourteen or fifteen hours. Glycemia is a mirror that reflects the circulation and combustion of carbohydrates, revealing the efforts made by the system to throw off part of the sugar cumbering it. By repeated examination of the sugar content of the blood, we can supervise the influence of foods on accumulation and utilization of sugar in the organism in health and in diabetes.

Archives Franco-Belges de Chirurgie, Brussels

26: 311-422 (April) 1923

*Gastric and Duodenal Ulcers. E. Enriquez and P. A. Carrié.—p. 311.
Noncomplicated Ulcer of Lesser Curvature. M. Charbonnel.—p. 321.
Hemigastrectomy for Ulcer in Hour-Glass Stomach. M. Goullioud.—p. 336.
*Grave Gastric Hemorrhages. G. Leclerc.—p. 349.
*Gastropylorectomy for Perforated Ulcer. L. Courty.—p. 355.
Care Before and After Operations on the Stomach. V. Pauchet.—p. 369.

Indications for Operation in Gastric and Duodenal Ulcers.—Enriquez and Carrié say that when the surgeon is called in, after failure of medical measures, the internist should demand a more complete and certain operation than gastroenterostomy alone. Too often, with this, they add, a supplementary operation becomes necessary. They have tided patients along for twelve days with absolutely nothing allowed by the mouth, and the ulcer healed smoothly. All gastric secretion ceases with thirty-six hours of total fasting. With glucose solution by the continuous drip method the patients felt well; by the third day they had no further thirst or hunger, while urine was voided in abundance. They think this could have been kept up even longer than twelve days. They have found olive oil excellent in ulcer cases. Every hour, except eight hours at night, a cup of milk (100 or 130 gm. of milk) is ingested, and with it a dessertspoonful or tablespoonful of olive oil, alone or in the milk. The pain is promptly relieved, and the patients sometimes gain over 2 pounds a week. This treatment is kept up for three or four weeks or longer; the benefit may be from the protecting coating of the oil or its modification of gastric secretion or a cholagogue action. Medical treatment is most durably successful with duodenal ulcer, while it fails most often with ulcer of the lesser curvature. They ascribe this to the fact that ulcer in the lesser curvature does not attract attention until in a comparatively advanced phase. They explain recurrence of ulcer by the persistence of the cause; the ulcers themselves always tend to heal.

Treatment of Grave Hemorrhage from the Stomach.—Leclerc has applied jejunostomy in three cases. This rests the stomach and gives it a chance to heal, while allowing ample nourishment. If medical measures fail and the stomach continues to bleed in spite of fasting and complete rest, he advises jejunostomy without further delay.

Gastropylorectomy for Perforated Ulcer.—Courty has compiled seventy-eight cases in the last three years in which this operation was done at once after the perforation, with recovery of 83 per cent. of the patients. The bacteriologic factor determines the outcome in the ultimate analysis, but clinically and practically it is determined by the time that has elapsed since the perforation.

Archives des Maladies du Cœur, etc., Paris

16: 401-480 (June) 1923

*Heart Sounds with Branch Block. M. R. Castex.—p. 401.
*Stain for Fresh Dried Blood. J. Sabrazès.—p. 408.
Epinephrin Test in Thyroid Disease. H. Vaquez and C. Dimitracoff.—p. 414.
Electrocardiography of the Auricle. P. Veil.—p. 428.

The First Heart Sound with Partial Branch Block.—Castex reports five cases in which the electrocardiographic tracings indicated block of the left branch of the bundle of His. The first heart sound was either double or only half the normal sound.

Stain for Fresh Dried Blood.—Sabrazès comments on the instructive findings in blood recently dried and stained with toluidin blue.

Bulletin de l'Académie de Médecine, Paris

90: 97-112 (July 24) 1923

*Serotherapy in Acute Myelitis. G. Etienne.—p. 102.
*Neuralgia in Epidemic Encephalitis. M. Bureau.—p. 106.
History of Inoculation Against Smallpox. V. Torkomian.—p. 108.
Apparatus for Taking Moving Roentgenograms. H. Béclère.—p. 110.

Serotherapy in Acute Myelitis in Adults.—Etienne reports extremely favorable results from the poliomyelitis antiserum prepared at the Paris Institute Pasteur, and administered in eight cases. Myelitis in adults seems to be prevailing in epidemic form, and in his two fulminatingly acute cases the serotherapy arrested the disease and the symptoms began to subside the next day. In the less acute cases the diagnosis was not made so promptly, and treatment was not begun till the fourth day or later. The effect was good, but slower in becoming manifest. The interval in three cases was eighteen days, two months, or eleven weeks after the onset, but the benefit was unmistakable, although not apparent for six or seven days. He gives the details of a number of other cases in which no serotherapy had been given. They all ran a very severe course, testifying to the gravity of the disease in the present epidemic. In one woman the myelitis had been ascribed to syphilis and treated accordingly, and she now has complete paraplegia.

Neuralgia in Epidemic Encephalitis.—The disease began in the farmer, aged 36, with diplopia, and the complete parkinsonian picture was six months in developing. During the year and a half since, there have been almost continual pains in the domain of the left trigeminal and intercostal nerves and brachial plexus. These pains are increased by the slightest noise, the sound vibrations causing agonizing exacerbations of the pain. The condition was unchanged after three months of treatment for this echolalgia, as Bureau calls it.

Bulletins de la Société Médicale des Hôpitaux, Paris

47: 679-715 (May 11) 1923

*Inefficiency of Intestinal Diphtheria Antitoxin Immunization. E. Lesné.—p. 679.
Anatomy and Physiology of the Left Ventricle. E. Géraudel.—p. 680.
*Perivenous Injections in Treatment of Hemorrhoids. R. Bensaude.—p. 686.
Radioscopy of the Bronchi and Trachea. E. Sergent and P. Cottenot.—p. 693.
*Autogenous Vaccine Therapy in Respiratory Diseases. G. Vallet.—p. 696.
*Effects of Arsphenamin on Pregnant Syphilitics. Pomaret and Benoit. p. 699.
Attacks of Unnatural Somnolence of Anaphylactic Origin. E. May.—p. 704.
Perinephritic Abscess Cured by Vaccine Therapy. P. Emile-Weil and Pollet.—p. 706.
*Oculocardiac Reflex in Mumps. R. Benard.—p. 708.

Inefficiency of Diptheria Antitoxin Given by the Digestive Tract.—Lesné says that as a rule passive immunization by introducing diphtheria antiserum into the intestines is impossible. Certain infants are capable of absorbing the ingested antitoxin, but this is attributed to defects in the intestinal epithelium, insufficiency of gastric juice, of hepatic function, or to more or less latent gastro-intestinal lesions. Older children can be immunized by intrarectal injection of diphtheria antitoxin only when the bowel is diseased. Absolute immunity can be obtained only by subcutaneous, intramuscular or intraperitoneal injections.

Treatment of Hemorrhoids by Perivenous Injections.—Bensaude made two injections of alcohol with excellent results but the patients suffered severe pains for two days after the treatment. He prefers injections of 3-5 c.c. of 5 per cent. urea and quinin hydrochlorid once a week, which he has used regularly during three years in treatment of a large number of patients. During the last six months he has made the injections only in the submucous cellular tissue at the base of the hemorrhoid. It produces a local edema and later the sclerosis which retards the venous circulation. Usually from six to ten injections are required to produce results, but in case of pain about the anus, the injections are suspended, as the pain is due to a fissure or to inflammation which must be relieved before proceeding with the injections. In the majority of cases the injections are painless, the solution of urea and quinin having an anesthetic effect which lasts several days. The hemorrhages returned in from six to ten months in four patients who had received ten injections, but a new series of injections seems to have produced a definite cure. The mode of action is that of closing the vessels by producing a perivascular, submucous sclerosis. Of fifty-two patients, only six had recurrence, but four cases of prolapsed hemorrhoids have been improved slightly or not at all. The results of the injections of quinin and urea may be inferior to those of phenol and glycerin or 96 per cent. alcohol, but they are less inconvenient, requiring no anesthetic.

Treatment of Acute Respiratory Diseases by Autogenous Vaccine.—Vallet calls his method of autogenous vaccination "ptysmatherapy," and he says it has produced favorable results in 75 per cent. In his thirty-one cases the injections were made subcutaneously in doses increasing from 1 to 2 and at times to 3 c.c., frequently daily. For obtaining 10 c.c. of vaccine, 5 c.c. sputum is placed in a test tube with 1 c.c. chloroform, and agitated until a milky emulsion is obtained. Then physiologic salt solution is added to the 10 c.c. mark, and shaken again. In viscid sputum the salt solution should be added at the same time as the chloroform, but in watery sputum a smaller quantity of salt solution or none must be used.

Research on Abortion from Arsphenamin Treatment.—Pomaret and Benoit say that in exceptional cases arsphenamin treatment may be considered powerless to counteract the feticidal action of syphilis, and it may even cause abortion. Experimentally, not only arsphenamin but most other organic forms of arsenic tend to cause abortion. Experience has shown that it must be used with care in small doses by intramuscular or subcutaneous injection, rather than by large intravenous doses at long intervals. Experiments on gravid rabbits showed them to be more sensitive than male rabbits to bismuth intoxication, but the toxic dose did not produce abortion.

Oculocardiac Reflex in Mumps.—Bernard, for study of the oculocardiac reflex in a contagious noneruptive disease, selected fifty patients with mumps, aged 20-22. In making the test, he informs the patient who is reclining on his back, that somewhat disagreeable tests will be made, but makes no pressure during the first ten seconds. The figure obtained, which may be notably high because of apprehension, is the first test and the increase above normal furnishes the measure of the cardiac instability of the subject. Ten seconds later he makes progressive pressure with his fingers which reaches the maximum in ten seconds, noting the figures obtained during three to five similar periods. The pressure is suddenly removed, and the figures taken for at least three ten second periods. All figures are multiplied by six to correspond to the one minute unit of the pulse, and to make them comparable with figures of those who use the quarter of a minute count. In 50 per cent. of his observations the pulse showed no change, and he concludes that mumps, which naturally determines an intense bradycardia, does not predispose to an oculocardiac reflex. This on the contrary is more rare in mumps than in normal persons of the same age, and it requires longer pressure to produce it in mumps than in a normal condition.

Médecine, Paris

4: 733-808 (July) 1923

*Nutritional and Digestive Disorders in 1922. L. Lortat-Jacob.—p. 733.
*Test Hyperglycemia in Diabetes. M. Labbé and F. Nepveux.—p. 743.
*"Gastric Claudication." F. Ramond and J. Mignac.—p. 748.
*Syphilitic Disease of the Intestines. R. Bensaude and L. Rivet.—p. 750.
*Enterorenal Syndromes. E. Antoine.—p. 755.
*Latent Exophthalmic Goiter. M. F. Beaulieu.—p. 760.
Vertical Stretching of the Stomach. G. Faroy.—p. 767.
*Arthritis in Gout. Mathieu Pierre Weil.—p. 773.
The Cruveilhier-Baumgarten Cirrhosis of the Liver. J. Huber.—p. 777.
*Lesions in Arteries in Diabetes. J. Heitz.—p. 783.
Rôle of Carbohydrates in Treatment of Diabetes. F. Rathery.—p. 786.
*Feeding by the Duodenum. R. Damade.—p. 792.
Treatment of Obesity. G. L. Hallez.—p. 797.
Indications for Operative Treatment of Gastric and Duodenal Ulcers. G. L. Hallez.—p. 798.

Recent Literature on Digestive and Nutritional Disorders.—Most of the works analyzed by Lortat-Jacob have been reviewed in THE JOURNAL as they appeared. He calls attention in particular to the disappearance of cancer in the esophagus after several applications of radium to the point of stenosis, Guisez having reported several cases of the kind. Loeper and Marchal have published several works on what they call gastric leukopedesis. They have established that leukocytes pass through the vessel walls into the stomach during the progress of digestion, and take an important part in the digestion process. Carnot and Libert have found feeding by the drip method through the duodenal tube very useful when the stomach had to be rested. It proved a life-saving measure in one case of mental anorexia with intractable vomiting. Linossier asserts that the acidosis of fasting and diabetic acidosis are due to the same cause—deficiency in glycolysis. But in fasting, the glycolytic function is lacking because there is no glucose to act on, while in diabetes the glycolytic function is lacking because—although there is plenty of glucose—the organs which normally carry on the function of glycolysis are not working so far as this function is concerned. It seems paradoxic to try to combat diabetes with fasting, but Linossier advises a trial of it, giving the diabetic patient infusions sweetened with levulose, as Kulz has shown that diabetics can form glycogen out of levulose.

Hyperglycemia Test in Diabetes.—The exaggerated glycemia that follows ingestion of 50 gm. of glucose is useful in the diagnosis of diabetes, but recent tests of twenty-seven diabetics have demonstrated that it throws no light on the prognosis.

Intermittent Limping of the Stomach.—Ramond apologizes for using the term *claudication gastrique* to explain the results of intermittent shutting off of the blood supply of the stomach. Besides occupational injury, syphilis, and lead or gout poisoning, these intermittent disturbances may be due to sympathetic vasomotor derangement. In this latter case there is usually violent pulsation in the abdominal aorta, with signs of a neurosis and tendency to visceral ptosis. The cramps and distress come on two or three hours after eating, as a rule, and, if the patient vomits, usually all the disturbance subsides at once. The diagnosis must be based mainly on the age, tendency to atheroma, the distressing nature of the pain, the absence of much dilatation of the stomach, the injurious influence of meat, fat soups, cold drinks, and the fact that alkalies fail to relieve. Rest during digestion and a milk-vegetable diet should be enforced. During an attack, rest, warm drinks, a tablespoonful of liquid petrolatum, and very hot compresses to the epigastrium are the main reliance, possibly supplemented by subcutaneous injection of 0.5 mg. of atropin sulphate, or tentative treatment for syphilis. The latter has rendered good service in intermittent claudication of the legs.

The Intestinal Manifestations of Syphilis.—The main thing is to think of the possibility of syphilis when confronted by an intestinal disorder. Bensaude and Rivet review the diverse clinical pictures for which inherited or acquired syphilis may be responsible. They cite a recently published case in which an ulcerative colitis—that had forced the surgeon to make an artificial anus—healed promptly under specific treatment for syphilis. In six of thirteen cases of cancer of the large intestine, there was a history of syphilis.

Influence of Intestinal Disease on Urinary Apparatus.—Heitz-Boyer recently pointed out a set of symptoms referable to the kidney from disease in the intestine on the right side. Antoine here describes an analogous clinical picture with disease in the descending colon and rectum. The secondary urinary derangement in such cases is characterized by pus and colon bacilli in the urine.

Hyperthyroidism Soon After Puberty.—The disturbances may be nervous, circulatory, genital, or of a general nutritional character, but without decided symptoms of exophthalmic goiter. Tests reveal exaggeration of basal metabolism, and under roentgen exposures of the thyroid, the normal balance is soon restored. Beaulieu describes four cases in detail, all in girls of 15 to 21. The basal metabolism in all corresponded to that of severe hyperthyroidism, and the hyperglycemia test paralleled it. In another case, the excessive basal metabolism in a man aged 50 with severe exophthalmic goiter dropped nearly to normal after four applications of electricity to the thyroid in three weeks.

Gouty Arthritis.—Weil comments on the multiplicity of forms that gout may assume in a joint. It may induce a clinical picture suggesting phlebitis, an ordinary infection or a tuberculous process. Gout should be thought of in all cases of arthritis. Tentative colchicin treatment will generally decide the differential diagnosis.

Circulatory Derangement in the Legs in Diabetes.—Heitz warns that the cholesterolemia in diabetes predisposes to arterial lesions. The slightest sign of reduction of the permeability of an artery in the leg in diabetes warns of the necessity for vigorous measures. The diet should contain only fats, with little cholesterol, and saline purgatives should be given. Sodium citrate (12 to 20 gm. a day) will reduce the pain with advanced obliteration. Tepid douches, mild local light baths, Vichy waters to combat the acidosis, and carbonated baths (Royat) aid in reducing the tendency to intermittent claudication and chilling of the extremities. Left untreated, diabetic arteritis tends inevitably to gangrene.

Feeding Through Duodenal Tube.—Damade enumerates a number of minor points useful in insuring ample nourishment while resting the stomach. He has succeeded in keeping the duodenal tube in place for fifteen or twenty days without incommoding the patients unduly. In the very nervous, the feeding can be by the drip method. The duodenal tube passing through the mouth does not interfere with ingestion of bismuth or alkalines to act on the stomach mucosa.

Nourrisson, Paris

11: 145-208 (May) 1923

*Heatstroke in Infants. E. Weill and Bertoye.—p. 145.
*The Cough with Tuberculous Glands. A. B. Marfan.—p. 157.
*Nursing Home in Rhône District. P. Commandeur.—p. 164.
Pseudoileus in Pneumonia in Infants. G. L. Hallez.—p. 167.
Antiscurvy Action of Elements of Milk. Lesné and Dubreuilh.—p. 172.
Radiologic Triangle in Pneumonia in Infants. H. Lemaire and Lestocquoy.—p. 174.
Congenital Absence of Pectoralis Muscles. W. Szczawinska.—p. 187.

Heatstroke in Infants.—Weill and Bertoye state that eight died of the sixteen infants with heatstroke among the twenty-one infants in a Lyons hospital during a hot wave in 1922. All were doing well when suddenly their temperature rose, and remained high, without appreciable morning decline. The skin and mucous membrane of the mouth and nose were dry, the pulse was small and often uncountable, and agitation and restlessness were extreme, but there were no convulsions, and gastro-intestinal derangement formed no part of the clinical picture. The infants died or began to improve after three days. The eight that recovered showed no sequelae. Although it was May, the thermometer registered 93.2 F. in the shade. Experience has shown that a temperature above 86 is dangerous for young infants especially when the humidity is high. The authors are convinced that some infants owed their survival to cool baths for ten or twenty minutes every three hours. Since then, the air of the hospital has been cooled with ice. Three zinc boxes, each containing 66 pounds of ice, are placed in the central passage of the ward on which the cubicles open. An electric fan above the box, playing on the ice, distributes the chilled air to all parts of the ward.

The Double Sound Cough.—Marfan declares that when a young child's cough is composed of two distinct, simultaneous sounds, this is always a sign of tuberculous glands in the tracheobronchial region. The cough is not paroxysmal nor protracted, and the child's crying does not show this bitonal character. The double sound cough is not only a certain sign of tuberculosis in the bronchial glands but it indicates compression of some organ in the mediastinum, and hence is important for prognosis. The course is almost always progressive in children under the age of 1 year; above this age the lesions may retrogress. Improvement has seemed to be promoted by intramuscular injection of 1 c.c. of a mixture of 3 c.c. of ether and 7 c.c. of olive oil, his routine treatment of chronic tuberculosis in young children. He makes the injection daily, increasing to 2 c.c. by the fourth day, and suspending after the sixth injection for four or five days. He then begins a new series and repeats this for weeks and months.

The Vinatier Nursing Home.—This institution gives a home to girl-mothers and abandoned wives who agree to nurse their infants. In two years there have been 166 mothers thus sheltered for from four to twelve months, and there have been only six deaths among the infants. There is also a department for motherless infants, with seven deaths among the fifty-three in this group. When a woman is nursing her own and another infant, the latter seldom thrives as well as her own infant.

Paris Médical

13: 437-460 (May 19) 1923

Works on Diseases of Liver, Pancreas and Spleen in 1923. E. Chabrol.—p. 437.
*Diagnosis of Jaundice from Retention. Carnot and Gaehlinger.—p. 451.
*Roentgenography of Biliary Passages. P. Duval, J. Gatellier and H. Béclère.—p. 456.

Diagnosis of Jaundice from Retention of Bile.—The duodenal tube may aid in diagnosis by the pigments and bile salts in the bile thus obtained; also by the pancreatic ferments in the duodenal contents—showing that the obstacle is not in the pancreas—and further by the presence or absence of blood, of cells and of bacteria. Usually the duodenal findings merely confirm the clay-colored stools in regard to the complete obstruction to the course of the bile. With cancer, blood is found continuously, but only irregularly with ulcer. Blood may be found in the duodenal content when it does not reach the stools. Erosion from a gallstone may induce bleeding, but blood mixed with bile does not clot. Carnot

and Gaehlinger noticed that the blood after extravasation in the duodenum was coagulated or in small clots. The duodenal tube will thus aid in differentiating obstruction of the bile ducts (from gallstones or a primary tumor, or indirectly by enlarged glands or adhesions), from tumor in the pancreas or bowel.

Roentgenography of Gallstones.—This article presents the results of comparative study of the normal biliary passages and those with gallstones by surgeon and radiologist working together. In about 60 per cent. of the cases of cholelithiasis, the roentgen rays aid decidedly in the diagnosis and in determining the coexistence of lesions in or around the duodenum or colon.

13: 461-476 (May 26) 1923

Functional Adaptation of Bone to Pathologic Conditions. L. Dieulafé.—p. 461.
*Signs of Incipient Lead Poisoning. A. Feil and R. Heim de Balsac.—p. 463.
Experiences with Bismuth and New Arsenical in Treatment of Syphilis. S. Nicolau.—p. 467.
Endoseptal Access to Pituitary. L. Dufourmentel.—p. 473.

Diagnosis of Incipient Lead Poisoning.—Feil and de Balsac examined 179 persons working with lead but not presenting symptoms suggesting injury from the lead. The lead line on the gums was found in 65 per cent., parotitis only in 3 per cent. Lead colic was the first symptom in 5 or 6 per cent. None of the other clinical signs or symptoms were specific or early. "The only reliance is on finding lead in the urine and basophil granulations in the erythrocytes."

Presse Médicale, Paris

31: 649-656 (July 25) 1923

*The Vegetative System. D. Daniélopolu (Bucharest).—p. 649.

The Vegetative Nervous System.—Daniélopolu reports the results of recent research which apparently establish that the balance between the sympathetic and the parasympathetic innervation of each organ is determined in the organ itself, not in the nervous centers. The balance may be upset by a lesion in the afferent nerve tracts, by a lesion in the organ itself, or by a general excitability or lack of excitability in the sympathetic or parasympathetic, or in both. Variable compression of the eyeball induces a number of visceral reflexes, as does compression of the vagus in the neck, which throw light on the factors involved. Tests with drugs, recording the effect on the contracting force of the heart, bladder, stomach, and other viscera by methods he has worked out, give some insight into the functioning of the vegetative nervous system. He claims that the methods he describes, especially his application of Marey's principle of manometer estimation of the contractile force of the viscera, from within, allow hitherto unattainable precision in such tests. He insists that drugs for these tests must never be injected subcutaneously; the intravenous route is indispensable. He gives the findings and charts from cases of each type of vegetative disturbance.

31: 657-668 (July 28) 1923

*Hemorrhages After Arsphenamin. P. Emile-Weil and Isch-Wall.—p. 657.
*Pathogenesis of Trophic Skin Lesions. Lévy-Franckel and Juster.—p. 660.
Cinchonin in Treatment of Malaria. L. Cheinisse.—p. 662.

Hemorrhagic Reaction to Arsenical Treatment.—Weil and Isch-Wall have been impressed by their ten cases of a hemorrhagic tendency developing after arsphenamin treatment in the last two years. The hemorrhages range and may progress from epistaxis, hemoptysis, bleeding from the gums and excessive menstrual hemorrhages to various forms of purpura, sometimes fatal. The slightest tendency to hemorrhage in the course of treatment with arsenicals should lead to suspension of this treatment. In four of their cases, during a previous series of injections, jaundice, or an eruption or edema with itching and fever, had developed. In their last six cases, the signs of intolerance, vomiting, diarrhea, fever or nitritoid crisis, had been observed only at the injection just preceding the one followed by hemorrhage. Subcutaneous injection of human blood arrested the hemorrhagic tendency at once in the mild cases. With grave hemorrhages, repeated transfusion of 200 to 300 c.c. of blood combated the anemia as well as the hemorrhages. One patient was thus tided along for four months, with less than one million erythrocytes, before the blood began to regenerate. She is in good health now, a year later, but a slight tendency to hemorrhage is still manifest at times. They generally supplemented the hematotherapy with a drip glucose solution, containing a maceration of 100 gm. of pig liver, and gave 40 drops of epinephrin solution by the mouth. When a hemorrhagic tendency had once developed, it flared up anew on resumption of arsenical treatment, even after a long interval. Even mercury roused the tendency anew, but bismuth was borne well in their cases. Bismuth seems less injurious for the liver and blood, but Drouet has reported a case of hemoptysis under bismuth, and two other clinicians purpura with metrorrhagia or an eruption. Whenever the bleeding time was found abnormal, the patients invariably manifested intolerance for the arsphenamin preparations. If a preceding hemorrhagic tendency is known, the nature of the manifestations of the intolerance can be foretold. Otherwise it appeared as an eruption, digestive derangement, jaundice or nitritoid crisis. The bleeding time alone may suffice as a guide to treatment, but a single test is not conclusive.

The Endocrine and Sympathetic Systems in Pathogenesis of Skin Anomalies.—Changes in the hair, nails, and the skin proper, pigmentation and horny degeneration, have a trophic origin, direct or reflex. "The epidermis, with its appendages, is like a mirror reflecting the functional disturbances of the different endocrine glands."

Revue de Médecine, Paris

40: 193-256 (April) 1923

*Physiology of the Suprarenals. E. Gley.—p. 193.
*Epinephrin Content of the Blood. A. Tournade and M. Chabrol.—p. 222.
*Acute Suprarenal Insufficiency. A. Sézary.—p. 246.

The Physiology of the Suprarenals.—Gley insists that study of suprarenal function should not be restricted to the properties of epinephrin. He urges further study of the toxicity of blood in suprarenalectomized animals. The attempt to explain all the phenomena by the loss of epinephrin has misled physiologists and pathologists. Sergent has recently called attention to the clinical picture of acute suprarenal insufficiency which bears the imprint of severe toxic action.

Epinephrinemia.—Tournade and Chabrol protest against the assumption advanced recently by certain writers that epinephrin is merely an excretory product. They present new arguments to demonstrate the important physiologic significance of epinephrin in the blood. By anastomosis of the suprarenal vein of one dog (after removal of one suprarenal) with the jugular vein of another dog, they found it possible to induce the two forms of physiologic reaction, nervous and hormonic, such as follow stimulation of the splanchnic nerve. In the normal subject, these two reactions blend and induce hypertension and hyperglycemia. But in the paired (one partially suprarenalectomized) dogs, the two mechanisms worked separately. The receiving dog showed excessive epinephrin content in the blood, actual hyperepinephrinemia, and all the various apparatus which epinephrin stimulates, started to work vigorously. The donor, on the other hand, had no suprarenal secretion (one suprarenal having been removed, and the secretion from the other being diverted into the other dog), but the blood pressure and the sugar content of the blood rose, showing that the splanchnic nerve is able to play the dual rôle of vasoconstriction and sugar regulation. They describe further research which demonstrated that the blood pressure-reducing action of suprarenalectomy could be arrested by transfusion of blood from the suprarenal vein. Severing the splanchnic nerve in the donor annuls the effect, but this can be counteracted by artificial stimulation of the splanchnic nerve. The functional cycle is thus complete: the tonic action of the splanchnic nerve, the secretory activity of the suprarenals, and the physiologic play of the suprarenal hormone.

Acute Suprarenal Insufficiency.—Sézary defines more clearly the clinical picture, showing what really belongs to the acute insufficiency of the suprarenals and what should be ascribed to other causes. He recalls that nine-tenths of the suprarenals can be destroyed without the loss proving fatal, and

hence these glands can be seriously compromised without clinical symptoms appearing. On the other hand, only insignificant lesions are found sometimes in cases of supposed fatal acute suprarenal insufficiency. All his evidence thus tends to prove that the triad of symptoms supposed to be characteristic of this may be induced by disease elsewhere, in the liver, the nervous or the endocrine system. In short, he adds, the domain of acute suprarenal insufficiency should be materially restricted.

Schweizerische medizinische Wochenschrift, Basel

53: 637-656 (July 12) 1923

*Treatment of Older Girls with Goiter. W. Silberschmidt.—p. 637.
Course of Oxidation Processes. H. Wieland.—p. 639.
Relations Between Parkinsonianism from Influenza and Catatonic Stupor and Mental Torticollis. J. Kollarits.—p. 642.
Balneotherapy as a Form of Nonspecific Shock Treatment. M. Favarger. —p. 645.
Gaseous Interchanges in Case of Exophthalmic Goiter in Mountain Climate. G. Michel.—p. 648.

Iodin Treatment of Goiter in Older Girls.—Silberschmidt reports the outcome of systematic iodin tablet treatment of girls, aged from 15 to 22. Two years' observation has shown that the treatment is borne well and never did harm, and many pronounced goiters retrogressed. The outcome was better with soft goiters than with hard, and iodin treatment is undoubtedly more promising for children than for adults. Goiters with connective tissue infiltration are not likely to show much benefit from iodin tablets or iodized salt, which has now been introduced into Zurich canton.

Pediatria, Naples

31: 521-576 (May 15) 1923

Case of Congenital Hemihypertrophy. O. Cozzolino.—p. 521.
*Hemophilia in Female Infant. L. Auricchio.—p. 532.
*Magnesium Sulphate in Treatment of Chorea. A. de Capite.—p. 537.
Paratyphoid Meningo-Encephalitis in Infant. G. Artom.—p. 545.
*Whooping Cough in Infants. A. Cantilena.—p. 555.

Hemophilia in Breast-Fed Female Infant.—A hematoma on the head after easy birth, ecchymoses on the skin later, and persistent bleeding from slight excoriations were explained by the coagulation time of an hour and a half on a watch glass and more than twice this in the test tube. No instances of hemophilia were known in the family, but the parents responded positively to the Wassermann test. After two intramuscular injections of normal horse serum, the coagulating time was reduced to one hour. Venous stasis did not induce punctate hemorrhages in the skin.

Magnesium Sulphate in Treatment of Chorea.—De Capite reports great improvement after subarachnoid injection of 0.10 or 0.15 gm. of a 25 per cent. solution of magnesium sulphate. A single injection cured the chorea in one of the three cases he reports; the others required from five to seven injections, given on alternate days. In another series he injected 2 c.c. intramuscularly on alternate days until the choreic movements subsided. The results were equally favorable by this route. The best effect was noted in two children who had had a little fluid drawn by lumbar puncture beforehand, to reduce the high intracranial pressure. The chorea disappeared after three injections in these cases; the other two required from seven to nine injections. He increased the doses in some of the cases, the maximum being 1.5 gm. intraspinally, and 4 c.c. intramuscularly.

Whooping Cough and Breast Feeding.—Cantilena remarks that only bottle-fed infants develop rickets as a rule, and latent tetany is common among them. He adds that nothing rouses latent tetany to such an extent as whooping cough. In the recent epidemic of whooping cough at Venice, very few of the younger children escaped, and convulsions were frequent. In seventy cases in his service, in three months, the children with convulsions were all in the artificially fed group. No signs of meningitis or encephalitis were found in the fatal cases.

Policlinico, Rome

30: 617-648 (May 14) 1923

*Diagnosis of Hydatid Cyst in Lung. B. Masci.—p. 617.
*Obesity After Epidemic Encephalitis. E. Sartorelli.—p. 624.
Calcium in Treatment of Tuberculosis. M. Borgogno.—p. 627.
*Technic for Measuring the Blood Pressure. G. Galli.—p. 629.

Diagnosis of Hydatid Cyst in Lung.—Masci inquires as to contact with dogs, and whether scraps of membrane have ever been noticed in the sputum. A peculiar depression and discomfort may be in striking contrast to the appearance of florid health, and the interspaces may bulge on one side. There is no atrophy of muscle, or point of special tenderness, but percussion is instructive if the cyst is large, even if it is deep in the superior lobe. He warns that exploratory puncture has proved fatal in 60 per cent. of the cases in which it has been applied. Radiography, the blood picture, and biologic tests are all useful. An abscess in the lung is usually preceded by pneumonia, and the course is rapid and febrile. Syphilitic disease of the lung is generally accompanied by other signs of syphilis, and is located low in the lung, and is improved by treatment for syphilis. Actinomycosis and other mycoses generally have a more rapid and febrile course, and yield to iodid treatment. The main thing, he reiterates in conclusion, is to think of the possibility of echinococcus disease.

Progressive Obesity After Encephalitis.—A tendency to transient obesity as a complication or sequela of epidemic encephalitis has been reported by several writers in various countries. But in Sartorelli's case the obesity, which began at the fourth month, has continued to increase at the rate of 5 kg. a month until the man, aged 30, now weighs 98 kg. (205.6 pounds).

Blood Pressure Measurements.—Galli relates that when the cuff was inflated with hot air, alternating with ice cold air, the blood pressure readings sometimes varied by 40 mm. of mercury. He covers the sphygmomanometer cuff with a tricot slip to prevent any vasomotor reaction to the cool rubber.

30: 221-268 (May 1) 1923. Medical Section.

*Vitamins in Mushrooms. P. di Mattei.—p. 221.
Blood Transfusion in Grave Anemia. P. F. Zuccola.—p. 239.
Comparative Tests of Renal Function. G. Diena.—p. 256.

Vitamins in Mushrooms.—Di Mattei's research in this line was done on pigeons and guinea pigs at the institute for experimental pharmacology at the University of Rome. The results showed a notable vitamin content in dried *Boletus edulis* and *Boletus scaber*, the most common mushrooms on the market. The vitamin factor does not seem to be totally soluble in either water or alcohol. Iceland moss does not contain a vitamin element. As we know that there are different vitamins and as each has its special field, he suggests that the clinical picture of beriberi should be separated into its component parts, and these be tested with separate vitamins. He thinks it significant that the vitamins in the mushrooms he tested were not impaired by heating, while every trace of Funk's vitamins is destroyed by heating. Mushrooms contain from 20 to 37 per cent. of nonprotein nitrogen while Iceland moss and other lichens contain none. For these and other reasons, he calls attention to nonprotein nitrogen, saying that under certain circumstances this and many other heterogenous substances can act like a true vitamin in deficiency disturbances. The nonprotein nitrogen compounds (alkaloids, betain, hypoxanthin, guanin, vernin, arginin, amids and their derivatives) may form a large percentage of the total nitrogen in vegetables. In germination, pyrimidin bases are developed, and their affinity with purin bodies deserves careful study in the search for new articles of food.

30: 269-316 (June 1) 1923. Medical Section

*Experimental Reproduction of Malaria. T. Pontano.—p. 269.
*The Colloidal Gold and Mastic Reactions in the Cerebrospinal Fluid. C. de Sanctis and D. Pisani.—p. 287.
*Anaphylaxis and Antianaphylaxis. E. Trenti.—p. 300.

Experimental Reproduction of Malaria.—To throw light on the baffling tenacity of malaria, the recurrences when cure had seemed complete, Pontano inoculated eleven persons free from malaria with blood of tropical malaria patients containing crescents alone. In six of the experiments the donors had been long under quinin treatment, and the blood contained only crescents. In three other experiments the malaria had been apparently cured by quinin, and no parasites could be found in the blood. These experiments were all negative. In two other experiments the donor had not been treated with

quinin and the plasmodia were in the ringlike form. The two receivers in these cases developed malarial fever in nine and fifteen days thereafter, but it subsided in a month in both under quinin treatment. Four of the six inoculated with from 5 to 10 c.c. of blood containing crescents alone developed tropical malarial fever, and it proved rebellious, recurring again and again. The plasmodia were first found in the blood the seventh, eleventh and fortieth days, but the malarial attacks developed in seven to eleven days. He gives the detailed fever charts from these patients inoculated with crescents. The species of plasmodium always corresponded to those of the source in his research. Another fact to which he calls attention is that malarial blood can be soon rendered sterile when the schizonts are only in the peripheral blood, but not when they accompany the crescents in the general circulation. This is explained by the reproductive capacity of the gametes and their resistance to drug treatment.

Reactions in Cerebrospinal Fluid.—Among the various tests applied in 157 cases, the mastic resin technic proved the simplest and the most reliable. Goebel's directions were followed.

Anaphylaxis and Antianaphylaxis.—Trenti reviews the history and brings the subject down to the latest acquisitions in different countries.

Riforma Medica, Naples

39: 601-624 (June 25) 1923

In Death Do All the Tissues Die? G. Cagnetto.—p. 601.
Artificial Production of Aneurysms. De L. Tommaso.—p. 606.
*Treatment of General Paralysis. C. Goria.—p. 609.

Tuberculin and Bismuth Treatment of General Paralysis.—Goria has only one case to report, but says the effect of the combination of tuberculin and bismuth was so striking that he does not wait for further confirmation before advising others to give this treatment a trial. The treatment at first aggravated the symptoms, but this was followed by their complete subsidence, and the woman has resumed her ordinary life. There has been no change in the Wassermann reaction in serum and spinal fluid, but the other reactions in the fluid disappeared as improvement progressed. He theorizes that the tuberculin paves the way for the bismuth to act on the neurosyphilis.

39: 625-648 (July 2) 1923

*Syphilitic Disease of the Stomach. R. E. Leone.—p. 625.
Syringe for Exploratory Puncture or Aspiration. B. Bisbini.—p. 628.
*Connection Between Furuncles and Tuberculosis. G. Grossi.—p. 630.
*Artificial Anus with Rectal Cancer. V. Pauchet.—p. 634.
Present Status of Subphrenic Abscess. E. Aievoli.—p. 637.

Gastric Syphilis.—In both of the cases Leone reports, the syphilis had induced stenosis. One patient was a woman, aged 32, the other a man, aged 42. After gastro-enterostomy the woman regained clinically complete health under intensive treatment for the syphilis. The man refused this treatment, and conditions grew rapidly worse, with death in three months. The stenosis in the woman was from granulomatous tissue; in the other, there was fibrous sclerosis from an old gumma, and the prognosis could scarcely have been favorable even under intensive treatment. Gastric syphilis affects the young and the mature, and men more than women. A syphilitic tumor in the stomach is indolent, movable, with regular outlines, and the general health shows little impairment. In the ulcer form, one or more elements of the triad, pain, bleeding and vomiting, may be lacking, and the exacerbations may be nocturnal. There may be hypo-acidity and absence of free hydrochloric acid. In case of doubt, tentative treatment for syphilis will usually clear up the diagnosis.

Furuncles and Pulmonary Tuberculosis.—Grossi queries whether there is any causal significance in the fact that in 49 of 200 cases of pulmonary tuberculosis there was a large furuncle in the case history, generally on the neck, and in 67 per cent. on the same side as the pulmonary process. In 10 cases there seemed to be a family tendency to furunculosis.

Rectal Cancer.—Pauchet's routine procedure is to make an iliac artificial anus; two weeks later he applies radium treatment, and waits for six weeks before removing the rectum. The whole is thus complete in two months. He draws the iliac colon through the obliquus muscle, which serves as a kind of sphincter.

Tumori, Rome

10: 1-128 (Aug. 5) 1923

*The Albumin Content of the Blood in Cancer. S. Gussio.—p. 1.
The Reticular Tissue in Tumors. F. Speciale.—p. 37.
Primary Teratomas in Fowls. S. Dentici.—p. 47.
*Psammoma and Tumors of Cerebral Meninges. G. Tarozzi and G. Baggi.—p. 53.
*Adenoma Sebaceum in Three Generations. M. Camplani.—p. 92.
*Primary Epitheliomas of the Epicardium. A. Businco.—p. 99.

The Albumin Content of the Blood in Cancer.—In cases of cancer, Gussio always found the globulin content of the serum in an abnormally high proportion while the serum-albumin was below normal. This inversion of the usual albumin ratio seems to accompany debility from various causes, but with cancer the change from normal is more pronounced, and it occurs earlier, while the general health still shows only slight impairment.

Tumors in Cerebral Meninges.—Tarozzi and Baggi analyze the necropsy findings in four cases of tumor of the cerebral meninges. Three had originated in the dura, one in the pia.

Adenoma Sebaceum.—Camplani gives the chart of three generations of a family with adenoma sebaceum in several members. He regards it as a kind of nevus, with symmetrical fibromatous angiectasia.

Tumors of the Inner Layer of the Pericardium.—Businco has compiled six cases of a benign tumor and twelve of a cancer originating in the inner layer of the pericardium. The cancers rarely induce metastasis as the malignant disease of the heart proves fatal before the metastasis stage is reached. The nonmalignant tumors were generally necropsy surprises.

Deutsche medizinische Wochenschrift, Berlin

49: 807-838 (June 22) 1923

Concentrated Saline Spring Water. H. Kionka.—p. 807.
*Operative Treatment of Pruritus Ani. F. Karewski.—p. 810.
*Diagnosis of Malaria. A. Rosenburg.—p. 811.
*Synthetic Epinephrin. K. Fromherz.—p. 814.
Psychiatric Advice Before Marriages and Adoptions. Hübner.—p. 814.
Nervous Complications of Typhus. N. Hirschberg.—p. 817.
Silica in Treatment of Pulmonary Tuberculosis. W. Düll.—p. 820.
Painless Mobilization of Stiff Joints in Hypnosis. H. Grage.—p. 821.
*Treatment of Pyocyaneus Infection. W. Paetzel.—p. 821.
Three Cases of Narcotic Poisoning with Suicidal Intent. B. Felden.—p. 822.
Hexamethylenamin in Treatment of Epidemic Encephalitis. Lehrmann.—p. 822.
History of Cesarean Section. M. Henkel.—p. 823.
Present Status of Radiotherapy of Tuberculosis. O. Strauss.—p. 825.

Operative Treatment of Pruritus Ani.—The man had been cauterized to relieve the pruritus ani but without relief. The old cicatricial tissue was resected, and the skin around the anus was separated from the tissues beneath. The illustrations show how the two large flaps thus obtained supplied a new covering for the area around the anus, and cured at one stroke the intractable pruritus of years' duration.

Differential Diagnosis of Tropical Malaria.—Rosenburg refers to cases in which the sudden onset and symptoms or other features deceptively simulated some acute surgical abdominal affection. The arsphenamin preparations frequently rouse a latent malaria, so that tropical malaria seems to be endemic in Berlin just now. Fully 37 per cent. of all the malaria patients in the last few years, and 50 per cent. of those with tropical malaria, had never left Germany.

Synthetic Epinephrin.—Fromherz states that only the optically active levorotatory epinephrin corresponds to the natural hormone in its action on the blood pressure.

Pyocyaneus Infection in Suppurating Wounds.—Paetzel reports favorable experiences with pulverized boric acid dusted on the wound. In several hundred cases, the green or blue suppuration had vanished by the next change of dressings.

Medizinische Klinik, Berlin

19: 929-964 (July 8) 1923

*Adiposis Dolorosa. H. Curschmann.—p. 929.
*Chronic Forms of Epidemic Encephalitis. F. Stern.—p. 931.
Erroneous Use of Term "Apical Catarrh." A. Winkler.—p. 937.
*After-Treatment of Pleurisy. M. Kaufmann.—p. 941.
Universal Suspensary. B. Chajes.—p. 943.
*The Peritoneal Fluid. E. Vogt.—p. 943.
Insulin in Treatment of Diabetes. K. Brandenburg.—p. 945.
Trauma Not Responsible for Progressive Paralysis. H. Engel.—p. 946.
Principles for Treatment of Leg Ulcer. E. Clasen.—p. 947.

Dysmenorrhea. E. Runge.—p. 949.
Mutual Relations of Dental and General Disease. S. Gräff.—p. 950.
Recent Works on Disease of the Eye. Adam.—p. 952.

Adiposis Dolorosa.—Curschmann emphasizes the thyroid element in the clinical picture in the three cases he reports. Under thyroid treatment the pains subsided, and the women lost their tendency to obesity almost entirely. No other measures except the thyroid treatment were applied. In a month the women, aged 60, 49 and 42, said they "felt as if they had been born again." The extreme tenderness of the bunches of fat is characteristic, as also symptoms of deficient endocrine function, especially of the thyroid. But the main thing is to think of the possibility of Dercum's disease, instead of ascribing the symptoms to neuralgia or rheumatism or to the menopause.

Epidemic Encephalitis.—Stern remarks that the official statistics for Prussia recorded 526 cases of epidemic encephalitis in 1920, but this figure probably would have to be multiplied by twenty, at least, to represent the actual prevalence of the disease. At the Göttingen clinic alone there have been 200 cases which dated from 1920, but they did not reach the hospital till a year or two later. The "recurrence" he ascribes to the persistence of the virus in the brain, regarding the disease as a chronic encephalitis. Nine cases are described to illustrate the wide variety in the clinical picture, but they all fall into the category of symptoms induced by lesions in a certain circumscribed region of the brain.

After-Treatment of Pleurisy.—Kaufmann describes some breathing exercises which he has found of great benefit after pleurisy and pneumonia. He insists that something of the kind is the most important of all measures after pleurisy and pneumonia, and his three years' experience has demonstrated the value of these special exercises.

Biology of the Peritoneal Fluid.—Vogt reports the results of his chemical, physical and biologic study of the fluid from the peritoneum obtained at seventy-five laparotomies.

Münchener medizinische Wochenschrift, Munich

70: 795-828 (June 22) 1923

Debt of Psychiatry to Neurology. O. Bumke.—p. 795.
The Mental Disturbances in Epidemic Encephalitis. E. Meyer.—p. 795.
*Influence of One Internal Disease on Another. E. Veiel.—p. 796.
Diagnosis of Latent Syphilis. W. Schmitt.—p. 798.
Creatinin Metabolism with Atrophy of Muscle. E. Nedelmann.—p. 800.
*Intermittent Colic from Adhesions. Landerer.—p. 801.
*Pernicious Anemia. E. Kulcke.—p. 803.
*Causal Psychotherapy in Asthma. E. Moos.—p. 805.
The Unduly Fastidious Appetite. R. Geigel.—p. 808.
*Treatment of Salivary Fistulas. K. Kleinschmidt.—p. 809.
*Stasis Hyperemia in Treatment of Chorea Minor. Esau.—p. 810.
*Diagnostic Import of Speaking Movements. E. Weisz.—p. 812.
Cerebellar Syndrome in Migraine. H. Siebert.—p. 812.
Rapid Recovery After Suture of Stab Wound of Heart. R. Engel.—p. 812.
History of Discovery of Circulation of Blood. v. Brunn.—p. 814.
Febrile Acute Meningitis. H. Curschmann.—p. 814.
The Professional Secrecy Question. T. von der Pfordten.—p. 816.

Influence of One Internal Disease on Another.—Veiel reports some cases in which an intercurrent disease seemed to cure a preexisting chronic disease. Among the cases cited is that of a physician, aged 45, whose severe gout has never returned since an attack of dysentery, a few years ago. The sudden change for the better with intercurrent measles the seventh week of severe transverse myelitis in a girl, aged 9, recalls the benefit from measles in chronic skin disease to which Rubens and others have called attention. Intercurrent scarlet fever speeded up the course of pulmonary tuberculosis in one youth, aged 17. Veiel queries whether inoculation with measles might not be justified in severe myelitis with a grave prognosis.

Adhesions from Duodenal Ulcer.—The two men presented an identical clinical picture of years of periodical attacks of pain in the right abdomen, between the costal arch and the McBurney point. The colic lasted for hours or days, and there was often vomiting but it brought no relief. The operation disclosed adhesions entailed by an old duodenal ulcer. Under the influence of some change in position or unusually hearty meal, the colon became compressed temporarily by the adhesions, binding down the bowel.

Pernicious Anemia.—Kulcke analyzes 69 cases at Dresden in the last ten years. From 6, 4, 3 and 5 annually before 1920, the number of cases jumped to 11 in 1921 and to 17 in 1922. The youngest patient was 17, the oldest 76. This latter patient has improved materially under quinin, arsenic and iron. In another patient, aged 74, the disease proved fatal in sixteen days. An autogenous vaccine seemed to benefit in one case but failed completely in three. Arsenic is still the main reliance. It seems to be as effectual by the mouth as by any other route, and is borne particularly well in pernicious anemia. Treatment otherwise is directed to combat autointoxication from the intestines.

Psychotherapy in Asthma.—Moos reports seven cases which sustain his assertion that psychanalysis may succeed in curing asthma after failure of all other measures. The circumstances attending the first attack will often give the clue to treatment. In only two of his cases was a sexual element plainly involved. The cure included abandonment of all drugs, and courses of graduated exercises. The psychotherapy pulls up the asthma with its roots, and the psychanalysis is generally most successful in connection with an attack, the attention of the patient being then concentrated on the asthma.

Treatment of Salivary Fistulas.—Kleinschmidt has found that under one or two exposures to the roentgen rays the fistula into the parotid gland dries up for a couple of weeks. This gives the fistula a chance to heal. This was prompt and complete in four of his six cases; the other two reqnired excision of the fistula. The outlet into the mouth must be permeable for this treatment to be successful.

Stasis Hyperemia in Chorea Minor.—Esau applied a Bier constricting band to the neck in treatment in two cases of severe recurring chorea, and in four primary cases. In two or three weeks the choreic movements had nearly all subsided. Four weeks were required for this in the case of one girl, aged 13. This was the seventh recurrence of the chorea; each previous recurrence had lasted for four or five months.

Speech Phenomena in Diagnosis.—Weisz has been studying the phenomena in neck, chest, abdomen and back which accompany the act of speaking. The unlike behavior of symmetrical points often aids in the diagnosis of internal affections.

Casopis lekaruv ceskych, Prague

62: 417-444 (April 21) 1923

*Medicolegal Significance of "Hypnosis." K. Kuffner.—p. 417.
Case of Eccentric Site of the Fovea and Congenital Changes in Its Region. J. Janku.—p. 419.
*New Method of Caloric Reaction. Zaviska.—p. 423.
Hypertrophy of Prostate and Its Surgical Treatment. Haim.—p. 425.

Medicolegal Significance of "Hypnosis."—Kuffner publishes a medicolegal case of alleged rape of a hypnotized girl. Besides giving the reasons which speak against the reliability of the witness, and against the alleged hypnosis, he asserts his belief that a hypnosis is principally the expression of willingness of the person to be mastered by the hypnotising subject. Everybody likes to be suggested to do what he would like to do, and agrees to follow in the hypnosis as far as his own wishes go.

New Method of Caloric Reaction.—Zaviska applies five drops of ethyl chlorid on a scrap of cotton to the tympanic membrane of the middle ear. The method is advantageous in dry perforations of the tympanic membrane, because it does not lead to infection. It avoids contamination of instruments in chronic inflammations.

62: 445-472 (April 28) 1923

Two Cases of Otogenous Abscess of Cerebellum. A. Precechtel.—p. 445.
Medicolegal Case of Homosexuality. T. Hegner.—p. 448.
*Neuritis of Auditory Nerve from Nicotin. P. Zaviska.—p. 451.
Friedreich's Hereditary Ataxia. J. Blatny.—p. 452.
Widal's Hemoclastic Crisis. J. Bures.—p. 454.

Neuritis of Auditory Nerve from Nicotin.—Zaviska reports four cases of affection of the auditory nerve due to nicotin. Two of them had disturbances, which could be localized in the central part of the vestibular nerve (nystagmus center).

Geneeskundige Gids, The Hague

1: 1-28 (May 11) 1923

*Obstruction of Bile Ducts from Chronic Pancreatitis. D. H. Klinkert.—p. 4.
Eruption with Acute Meningitis. P. H. Kramer.—p. 13.

Obstruction of Bile Ducts by Chronic Pancreatitis.—The intense jaundice and itching were apparently explained by the hard tumor felt in the pancreas. The surgeon's diagnosis was cancer of the head of the pancreas, but Klinkert, on the basis of preceding cholecystitis and urobilinuria, urged anastomosis between the gallbladder and stomach. The course of the two cases justified his assumption that the tumor in the pancreas was a secondary chronic inflammatory process. It subsided when clinically normal conditions were restored. in the biliary apparatus.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

1: 2494-2616 (June 9) 1923

The Scientific Work of R. H. Saltet. J. J. van Loghem.—p. 2494.
*Pyramidal Malformation of Chest. C. W. G. Mieremet.—p. 2503.
*Substandard Children. C. J. van der Loo.—p. 2519.
*Muscular Force Versus Intellect. A. Querido.—p. 2527.
Obesity in Boy of Ten. J. Koopman.—p. 2533.
Fracture of First Lumbar Vertebra. F. S. van B. Bastiaanse.—p. 2538.
Form of Glucose in the Blood. S. van Creveld.—p. 2542.

Pyramidal Malformation of Thorax.—Mieremet refers to van den Bergh's "tetrahedral" shaped chest in persons who have had asthma from childhood. He encountered five cases of this combination and Elias another. Both exclude rickets as a cause, but de Bruin noted this pyramidal shape of the chest in two boys, and he ascribed it to rickets. Mieremet here reports the necropsy findings in van den Bergh's earliest case, five years after it was published. No trace of rickets was found, but there was pronounced emphysema of the lungs and the heart was dilated and hypertrophied.

Diagnosis and Treatment of Substandard Children.—Van der Loo accepts seven classes of substandard children, the undernourished and the overfed, those with too narrow chests, anemia, extrarenal albuminuria, chronic enlargement of lymph glands, nervous, and mixed forms. He describes in detail the means for recognizing each of these forms, and the measures that should be applied in each. His formula is based on the difference between the weight and chest measure and the weight and chest measure that correspond to the height in the table of normal standards. With a narrow chest, special exercises are necessary, but as the vital capacity is low, these children should rest a great deal, and overexertion should be guarded against. For the excessively nervous he advises a change of environment, and for chronically enlarged lymph glands, treatment as for tuberculosis, especially the seashore, cod liver oil, calcium and outdoor life.

Muscular Force and Intellect.—Querido reports tests on twelve brain workers and twelve hand workers which showed that the latter could exert more muscular force than the first group, but could not maintain the effort as long as the others. The total output of energy was thus greater in the brain workers. The tests were made on the thumb.

Acta Ophthalmologica, Copenhagen

1: 1-96, 1923

New Method for Expressing the Magnifying Power of Ocular Optical Instruments. H. Gertz.—p. 3.
*Familial Degeneration of Retina. V. V. Alkio.—p. 27.
*Tuberculosis of the Conjunctiva. K. K. K. Lundsgaard.—p. 39.
*Elliot's Operation. C. F. Bentzen.—p. 43.
*Advancement Sutures. H. Rønne.—p. 46.
Central and Eccentric Fixation. E. Holm.—p. 49.
*Spectacles Inducing Delusions of Movements. H. Rønne.—p. 55.
Coloboma of the Vitreous Body. E. Holm.—p. 63.
Anomaly of Optic Disk with Arteria Hyaloidea Persistens. E. Holm.—p. 66.
Semicentennial of Helsingfors Eye Clinic. K. K. K. Lundsgaard.—p. 68.
*Historical Illustration of Cataract Operation. G. Norrie.—p. 71.

The Acta Ophthalmologica.—This is the first issue of the newly founded journal which is the result of the cooperation of the ophthalmic surgeons of Denmark, Finland, Norway and Sweden. The articles, as in all these *Acta* published in Scandinavia, are in either English, French or German, the Scandinavian writers refraining from using their own language. Even the society proceedings in this issue are in English. Prof. K. K. K. Lundsgaard, Lundsgade 6, Copenhagen, is the editor in chief. The annual subscription is 25 Danish crowns ($6.00).

Familial Degeneration in the Macular Region.—Alkio illustrates the peculiar hereditary degeneration of the macula in four adult brothers and sisters. It affected both eyes and induced relative central scotoma. The five other children were normal in this respect. The cases belong in Stargardt's category of progressive familial degeneration in the macular region.

Tuberculosis of the Conjunctiva.—Lundsgaard states that twelve of his twenty-five cases of primary tuberculosis of the conjunctiva have been under observation for years, and none of these patients has developed tuberculosis elsewhere. All the others were asked to return if tuberculous lesions developed later, and the fact that nothing has been heard from them is presumptive evidence that they have escaped, like the rest. The eye lesion in all healed completely under Finsen light treatment.

Elliot's Operation.—Bentzen discusses the preferable technic for making the conjunctival flap in Elliot's operation.

Effect of Advancement Sutures on Elevation of the Visual Axis.—Rønne remarks that the importance of unsymmetrical placing of the sutures in operations for squint is not stressed enough in the textbooks. It is sometimes possible to correct pre-existing deviation by overcorrection at the first suture, and proper correction at a second suture, as he describes.

False Movements Seen Through Spectacles.—Rønne analyzes the significance of these illusions of movement, and their connection with the vestibular apparatus.

Historical Illustration of Cataract Operation.—The painting, which is reproduced, was in the center of a target, dated 1784, used by the Danish Shooting Guild. Each year the champion for the year presented a new target to the guild, with a picture on it suggesting his business or profession. The donor that year must have been a surgeon. The target bears the inscription "My brother must his sight renew, Remove the mote, and lead runs true." This guild dates from before 1443.

Svenska Läkaresällskapets Handlingar, Stockholm

49: 71-156 (June 30) 1923

*Clinical and Experimental Studies of Hypertension. E. Kylin.—p. 73.

Clinical and Experimental Study of the Pathology of Hypertension.—Kylin reports the results of his study, started in 1918, in 156 pages, and reviews the literature. He considers the capillary pressure the central problem in kidney pathology. He discusses arterial or essential hypertension and the hypertension with glomerular nephritis. In essential hypertension there is no injury of the capillaries, and the blood pressure is characterized more by great fluctuations than by a high level, the rise and fall being due to impulses which cause constriction or dilatation of the vessels. Even a high pressure may be unaccompanied by kidney disease, the vascular injury being located in the arteries. Carbohydrate tolerance is less in essential hypertension than in normal conditions, and the disturbance of the vegetative nervous system is indicated in certain diabetics in whom mental states cause glycosuria more easily than in healthy individuals. There are no edema or retinal lesions; capillaries and capillary pressure are normal but there are pathologic diurnal variations in the blood pressure, paradoxic reactions to epinephrin, increase of mononuclear elements and frequently increased blood sugar. In glomerular nephritis the hypertension is due to injury of the capillaries caused by toxins of certain acute infectious diseases, and this precedes the symptoms of kidney disease. It is accompanied by edema, high capillary pressure, retinal lesions, normal or only slightly increased diurnal variations in blood pressure, normal reactions to epinephrin and normal blood sugar. Though urinary symptoms appear only after hypertension has set in, glomerular nephritis is concomitant with, rather than the result of, hypertension, which is indicated by the fact that the abnormal pressure may disappear even when the kidney lesions remain and cause death. He concludes that this division of hypertension leads to two different lines of research, one including the capillary system, with edemas, cellular tissue nutrition and the contractility of the capillaries, which he calls the peripheral heart action, while the other line includes the vegetative nervous system and metabolism.